

# DICK SMITH WHOLESALE

## Electronic Enthusiast's Catalogue 1983/4

RECESSION  
OVER! YOU SAVE!  
DIGITAL REGISTRATION  
RADIO CONTROL  
\$149.50

**BUY NOW  
AND SAVE!**  
Prices must rise  
due to dollar  
devaluation



★ 15TH BIRTHDAY EDITION  
★ BRAND NEW PRODUCTS  
★ UNBEATABLE PRICES

95¢



# An enthusiast's Aladdin's Cave



Everything for the electronics enthusiast...at savings of up to 60% on our competitors' prices. And every product we sell is backed by our exclusive 7-day satisfaction guarantee. You can trust Dick Smith Electronics.



A huge range of enthusiast's books - everything from data leaflets to thousand page reference manuals. If it's in electronics, there's a book about it here!



Of course the very latest in the world of computers from the world's leading manufacturers - at low Dick Smith prices. And you'll find the enthusiastic staff willing and eager to help you!



A special section for amateur operators in most Dick Smith stores - with a specialist amateur who can speak your language, understand your requirements.

*That's a  
DICK SMITH  
STORE!*



# Dear Customer,

Welcome to our 15th anniversary catalogue.

Was it really 15 years ago that I opened the door (yes, there was only one) of my first tiny 'store'. Little did I realize then how the company could grow. From one store to 36 (or is it 37?) across Australia and New Zealand, with another 10 stores planned to open during the life of this catalogue!

What does this mean to you, the hobbyists of Australia? You save money! Our size now gives us very good buying power - and we pass the savings on to you. We import direct - so there's no middleman mark-up. And we now have the technical and service back-up we used to dream about!

Of course, the whole world is experiencing tough economic times. My solo world flight demonstrated this to me dramatically. It also firmly convinced me how much better off we are here in Australia than almost everywhere else.

Dick Smith Electronics might be expanding; but as we say on the cover, we're still "100% Australian owned... AND PROUD OF IT!"

P.S. I think it's 38 stores now. Wait... 39. Another one's opened since I wrote this letter!

Once again,  
it's over to you.

*Dick Smith*  
VK2DIK

## STOP PRESS!

This catalogue was being printed when the Government announced drastic adjustments to the Australian dollar exchange rate.

Imported goods must rise in price - but if you hurry you can save a fortune, because we won't be passing on price increases until absolutely essential.

Obviously some prices in this catalogue could be out of date: for the latest price of any item please contact your nearest Dick Smith store.

To find the section you want, simply line up that section with the tab index down the side of the catalogue. It's so quick and easy!

## Quick Index



**Electronic games**  
The latest and greatest from around the world

6  
-10

Tell the time in dozens of different ways...



12  
-13

## Clocks & Watches



The fastest growing electronic hobby in the world. You could join in!

## Scanners

14  
-15

Calculate your savings right through this catalogue!

## Calculators

16  
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Everything from the beginner's to the professional's models

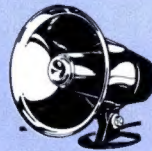
## Computers

18  
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## Intercoms & Phone Products



30  
-34



Keep intruders out - while you watch a great TV picture!

## Security & TV products

35  
-39

Now listen here... you can with these great hi fi products!

## Audio Products



40  
-50



This amateur scene is really getting professional!

## CB & Amateur

51  
-59

Go on - have a go. Your friends will never believe you built it!

## Kits



60  
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All in one, handy reference. What is the frequency of the Mt Ginini repeater?

## Data

71  
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And anything else you're ever likely to want will be here!

## Books

104  
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Wow! A digital multimeter that checks capacitance: and that's just the start!

## Test gear & Tools



112  
-120

The hobbyist's wonderland. Top quality components at bargain prices!

## Components



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-143



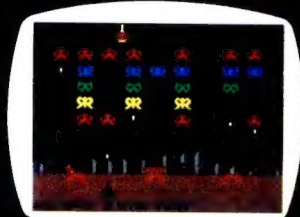
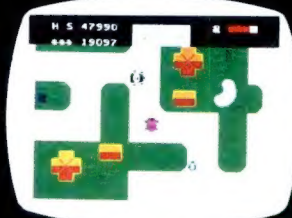


**Tank attack Y-1610** You're a tank commander locked in deadly battle. You've really got to have your wits about you to play this one!

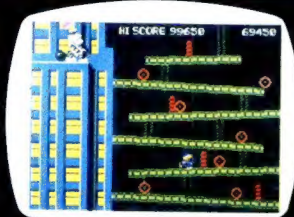
**Tennis Y-1620** With real 3D figures. All the fun and excitement of the Grand-Slam tournaments—with real tennis scores, rules, etc.

**Auto-Chase Y-1630** the old time car chases take on a new meaning—when you're in the driver's seat! And there are extra hazards at every turn. Watch it!

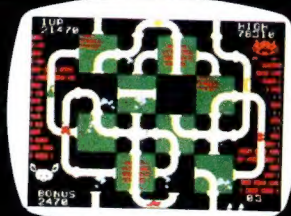
**Astro Pinball Y-1685.** The be all and end all of electronic pinball. Don't waste those 20c anymore, you can play this one for free.



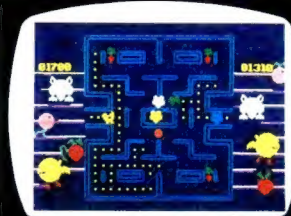
Free! a free Sonic Invaders cartridge supplied with every Wizard! Now with added features, more exciting to play.



**Police Jump Y-1622.** Rescue the damsel from Dirty Dan. You must climb up to the top of the building via scaffolding while dangerous objects are being thrown down at you. Treacherous tornadoes are everywhere as well!



**Mouse Puzzle Y-1680.** A fantastic new idea game. You are controlling a mouse that is being chased through a pipe system. Can you escape? A totally addictive game.



**Crazy Chicken Y-1640.** As a chicken you must lay eggs at strategic points, but watch out for the foxes!



# Introducing the TV game console that's years ahead...


## The brilliant Dick Smith

# WIZZARD

### Brand new design


The Dick Smith Wizzard uses the very latest technology available. Most of the games around were designed two, three or even more years ago. And at the speed electronics is advancing today that's a long, long time. The design of the Dick Smith Wizzard is absolutely up-to-date; it was finalised only a few short months ago. It is therefore far more advanced than older machines.

### Incredible picture quality



The Dick Smith Wizzard has really outstanding picture quality! Its resolution (49,128 pixels) is far greater than the most popular game on the market. The result: a fantastically better picture! And this means far better games and far more enjoyment. Just compare the Wizzard beside any other game and you'll be amazed. Forget about those 'stick men' you've seen before: with the Wizzard you get real 'three dimensional' figures. Even the signs around the tennis court come alive. It's so realistic! Have a look at the colours, the complexity of the screen pictures overleaf. They're almost like the screens NASA use in the space shuttle - they're that good.

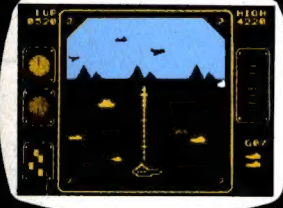
### Fantastic range of games



Every one a winner with the whole family. The Wizzard is so advanced you can play up to 32 games per cartridge...one player, two players, amateur, professional standard...you choose yourself. So it's impossible to play the same game twice. The most popular video games sell on the average 6 cartridges per machine. Well, we have over 12 of the most popular cartridges available NOW - and more coming all the time. So you'll always have plenty of games available.

Planet defender Y-1650 Unbelievable realism: incredible action. Only the best survive. They'll be trying to get you from every angle possible - and a few impossible!

### Automatic games feature



The Wizzard's brilliant design engineers have found that normal instructions are not completely adequate. So advanced are the Wizzard cartridges that each one contains a separate demonstration program to show you how the game is played right there in front of you. No other game we know of has this outstanding feature!

Air-Sea Attack Y-1660 Get a load of the incredible graphics! And that's only the start...if you like action and plenty of it, put yourself in the commanders seat of this one!

### Fantastic serviceability & robust design

The Wizzard has been especially designed for the type of punishment kids can hand out to TV games. They tug at the hand controllers...spill things on them... they knock them about. All the electronics in the Wizzard are on one single printed circuit board - almost eliminating internal wiring (one of the main areas of trouble in some machines). And the hand controllers not only have spill-proof keypads, they also feature quick-connect plugs for easier service - should it ever be required. You don't have to send your whole unit away for service just because one hand controller develops a fault: and you can still play most games with one controller!

### Unbelievable low price

The only comparable computer system in the world costs nearly \$200 more than the Dick Smith Wizzard. The Wizzard sells for an amazingly low \$295. With all its amazing features, you'd expect to pay much more for a machine as versatile as this.

**DICK SMITH  
WIZZARD ONLY \$295**

**INCLUDES FREE  
SONIC INVADERS  
CARTRIDGE**

Game Cartridges only **\$39<sup>95</sup>**

### TRY IT YOURSELF FOR 7 DAYS

What other video games supplier gives you this offer? Purchase the Wizzard and if you're not completely delighted, return it in original condition & packaging for a complete refund. You owe nothing - not even an explanation! The Dick Smith Wizzard is, at present only available from Dick Smith Electronics and our authorised resellers. We may never be able to get enough stock to sell them throughout Australia. So they may be hard to get, but we can assure you they are worth coming to us for!

*And it's also a personal computer*

See Pages  
24 & 25

Make your mailbox your own Dick Smith branch



# Games

NOW, second generation hand held games!



NEW FOR 83

## TRI-SCREEN watch & games

Yes! Not just one screen. Not even two. But an amazing THREE SCREENS on each of these two games. More excitement... more value. Incredible advances in hand held game technology makes it all possible! And they also have an accurate quartz crystal controlled clock with alarm.

Why settle for less?

### Diamond Hunt

Struggle past the mad elephant throwing rocks, the witch doctor casting spells and the hungry lion, and you're 1/3rd of the way. Then, if you dare, swing across the bottomless gorge, and avoid the deadly rock slide, and you have only one more test to pass. If you're still game, find the magic axe, avoid the poisonous snakes and recover the lost diamond. No-one has ever survived dangers like these!

Cat Y-1031

### Deputy Den

The bank sounds the alarm and you have to get across the street, past the cattle stampede, past runaway wagons and speeding freight trains and then your trouble is just beginning.

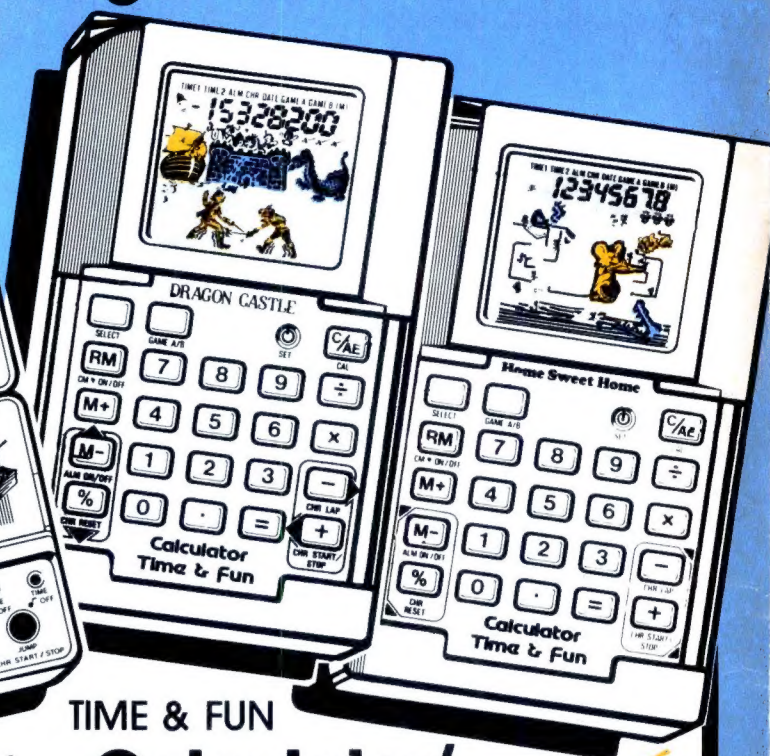
Get into the bank and shoot it out with one nasty crook, while the other takes the money and runs.

If you survive the gun battle, follow the other crook outside and fight him with your bare hands. If you win, you get to recover the money. If not, its game over for you.

Cat Y-1032

Amazing only **\$39<sup>95</sup>**

With Alarm



TIME & FUN

## Calculator/ time & games

With Alarm

Games with a real purpose — each one has a full function LCD calculator built in PLUS an accurate clock. So you'll know how much time you have left for playing games, before you start calculating! Great gift idea for students — they won't miss out on the games that all the other kids have got — plus they have their own calculator and clock.

### Dragon Castle

An evil wizard has kidnapped the beautiful princess and only you with your skill and your famous magic sword can save her. The treacherous wizard can conjure up fire-breathing dragons and sneaky, arrow-shooting soldiers so beware!

Cat Y-1036

### Home Sweet Home

Poor little mice are looking for a new house and only you can help. Carry them safely by the Raging River, past Crunch, the Hungry Crocodile and keep them away from Slasher, the mean Cat. It has two levels of difficulty, to keep the excitement going.

Cat Y-1035

Value **\$29<sup>95</sup>** At

**DIRECT IMPORT — YOU SAVE**

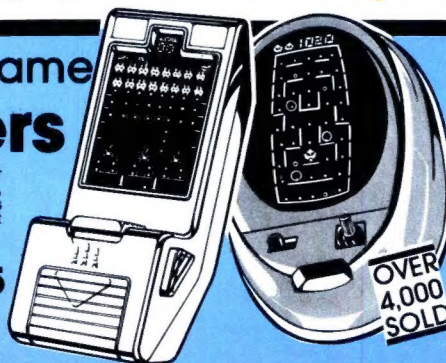


## Our most popular game Alien Invaders

Now you don't have to leave home to play this ever popular game. This is a new improved version over our last model, featuring A TWO COLOURED DISPLAY!! It also features two levels of difficulty. Great for one or two players and it doesn't eat 20¢ coins! Cat Y-1152

OVER 10,000 SOLD

STILL ONLY **\$29<sup>95</sup>**



OVER 4,000 SOLD

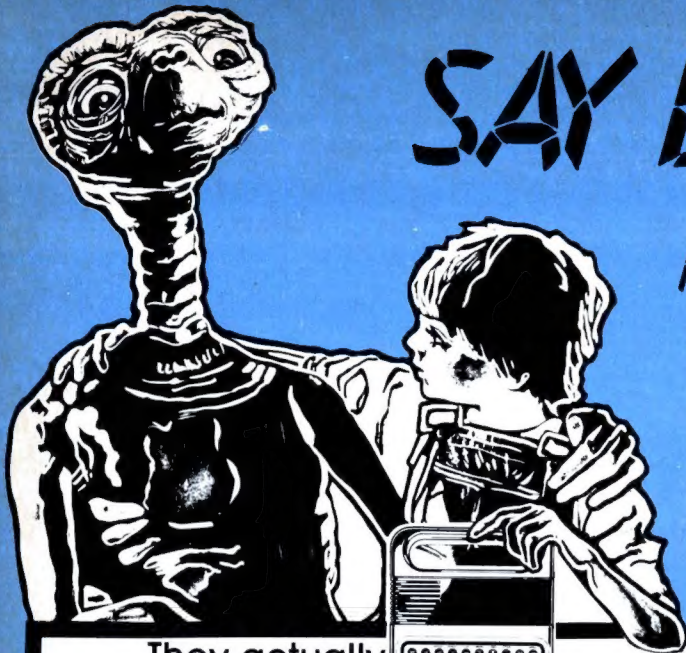
## latest arcade craze in handheld form Pucki & Monsters

Run, get Pucki energized to eat up the monsters. This is a microprocessor controlled electronic hand-held game with a three colour fluorescent tube display. The play field consists of a 5x9 matrix. Maximum score is 9,999. Object of the game is to get energized to eat up as many monsters as possible. You can easily control the movement with a joystick. Very exciting indeed..

Cat Y-1149

VALUE **\$39<sup>95</sup>**





# SAY DICK SMITH

FOR LOWER PRICES  
ON TEXAS TALKING  
LEARNING AIDS



## E.T. Fantasy Pack

Here it is: Texas Instruments universally-famous learning aid, the incredible Speak and Spell. And now we've got the amazing new E.T. (Extra Terrestrial) package to go with it! Don't pay \$110 or more - we believe our price is the lowest in Australia!

Contains:  
Speak & Spell, E.T. Fantasy  
Module, Activity Book, Full  
Colour Movie Poster, T-shirt  
iron-on decal.  
Cat Y-1295

Amazing  
Value  
**\$99.00**

Compare our price

They actually  
speak to your child  
as they teach!



## Speak & Read™

The Speak & Read™ helps beginning reading skills. It introduces more than 250 of the most basic English words. Bright challenging activities develop vocabulary, word meaning and reading comprehension. A colourful 64 page book 'You can Read' adds to the enjoyment of learning. Positive verbal reinforcement motivates students to improve their skills. And they can use Speak & Read™ alone, or with friends — it offers six special games and activities to play. It is battery operated with APD™ (automatic power down) feature in case they leave it switched on: it won't flatten the batteries. An optional AC adaptor is available. Remember, with TI's Speak & Read™, you're not just buying another electronic game or toy: it is a genuine learning aid, using the very latest technology. It's value for money, considering the years of development and research that it has taken to produce circuits that actually make up their own speech!

Cat Y-1313

Value **\$89.00**  
At

## Speak & Spell™

Speak and Spell™ helps develop skills in spelling, pronunciation and reading. It pronounces the word — the student keys in the spelling. It tells you whether you're right or wrong and also displays your score. It has in it's 'vocabulary' over 200 everyday words most often misspelled. They're the words most students have trouble with. It teaches by involving: the student hears the word, spells the word and sees the word. And it's fun! A colourful 32 page book 'Fun with Words' is included, which contains spelling games and activities plus easy-to-understand instructions. Ideal for all students, from beginners up. And it doesn't matter if they leave the unit on: it automatically turns itself off after a few minutes to save batteries! Operates from 4 C-cells (not supplied) or optional AC Adaptor.

Cat Y-1300

## Plug in expansion modules Vowel Power Super Stumpers



Develops skills in recognising and managing vowel patterns.  
Cat Y-1305  
**\$22.95**

Helps students master difficult words etc.

No.1: For grades 4,5 & 6 Cat Y-1301  
No.2: For grades 7 & 8 Cat Y-1302



**\$22.95 EACH**

E.T. Module, from Fantasy Pack Cat Y-1303 **\$25.75**

## Speak & Math™

The Speak and Math™ can generate over 100,000 math problems. It also talks to you, telling you whether you're right or wrong. There are challenging activities and exciting games, which makes learning fun. There are three levels of difficulty, including a beginners look at geometry. There's a colourful 32 page book 'Math Talk'. The unit is battery operated with APD™ (automatic power down) which turns it off automatically, or by optional AC power supply.

Cat Y-1310

ONLY **\$89.00**



### WHO'S WHO AT THE ZOO

For Speak and Read™ Builds sight vocabulary as well as comprehension practice and word endings. Cat Y-1306

**\$22.95**



### DOG ON A LOG

Helps comprehension building and adds over 130 words to Speak and Read™ Cat Y-1307

**\$22.95**



### SEA SIGHTS

For Speak and Read™. Aids in developing reading comprehension and vocabulary. Cat Y-1308

**\$22.95**

## Math Marvel

Add fun and excitement to learning basic math skills. Generates more than 40,000 problems: exciting games like numeric, flash, zap, quest and checker. Ideal for primary school age, battery operated, also with APD (automatic power down) which turns it off if left on.

Value **\$29.50**  
At

Cat Y-1321



Cat Y-1260

## Why Pay \$1000 Or More? 6 Level Chess Computer

WOW! A chess set that can turn you from a raw beginner into a Grandmaster. With 6 levels of difficulty — ideal for all standards — and its advanced program means it carefully analyzes every move and piece — making the game really exciting. And the revolutionary new sensor-board means there's no need to key-in moves! An ideal gift suggestion!

Complete with  
Chess men  
and power  
supply

only  
**\$289.00**

Try our speedy Bankcard Order Line - (02) 888 2105



# Games

latest games  
fun!



## Space Shuttle Game

NEW FOR 83

Keep them amused for hours with this realistic Space Shuttle model and exciting multi-level space game in one. Sound effects, multi-coloured display, microprocessor controlled... so much like the real thing that you'll be waiting for the tiles to fall off! Fantastic! Cat Y-1145

ONLY \$29<sup>95</sup>

MODELLERS  
WHY PAY MORE?

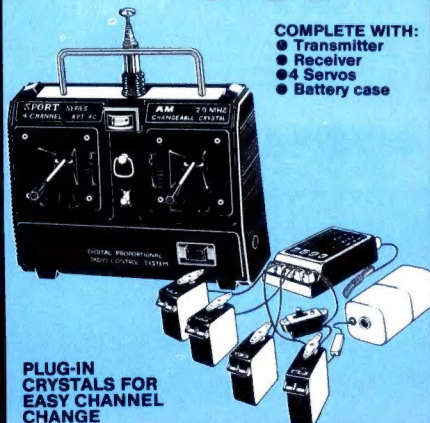
## 4 Ch digital proportional Radio Control

HERE AT LAST! A 4 channel radio control for bringing life to your model boats, tanks, cars, planes - in fact anything that will take radio control - including yachts!

You can now control retractable undercarriage, bomb bay doors on your WWII bombers - plus many more features on your models that up until now have been uncontrollable.

This is a fantastic unit that would make every boy and dad the envy of fellow modellers. Cat Y-1240

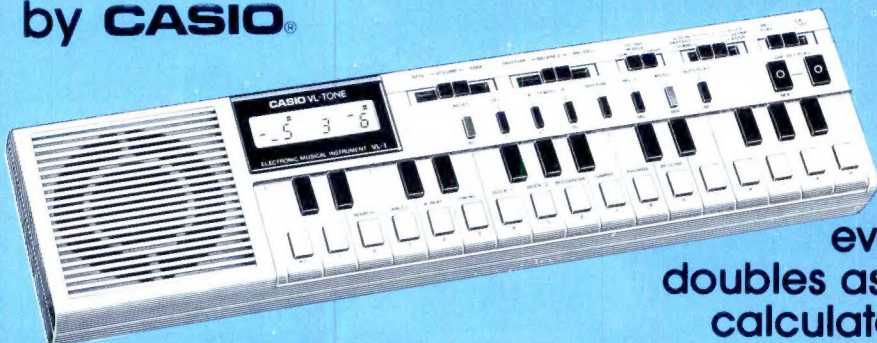
29 MHz 4 CHANNEL \$149<sup>50</sup>



COMPLETE WITH:  
● Transmitter  
● Receiver  
● 4 Servos  
● Battery case

PLUG-IN CRYSTALS FOR EASY CHANNEL CHANGE

anyone can be a musician!  
**The amazing VL-Tone**  
programmable music machine  
by CASIO®



even  
doubles as a  
calculator!

It's small enough to be held in the hand - but it contains incredibly sophisticated VLSI (Very Large Scale Intergration) electronics to give you performance and flexibility that would have been thought impossible just a short time ago. It gives you: a background rhythm (ten different!) ● records the melody you've just played ● 5 different instrument sounds (piano, fantasy, violin, flute, guitar) ● plus the ability to create millions of sounds of its own. You'll be playing tunes in just a couple of minutes. And playing tunes you never believed you could! And to prove the point, you can then play them back to your friends to amaze them, too! And we almost forgot to tell you: it doubles as a calculator!

Cat Y-1156

\$69



1000s  
SOLD

at only  
\$49<sup>90</sup>

amazing value

## THE DICK SMITH Economy Colour TV Games System

All the excitement of the big, expensive TV games - without the big expensive TV games price! This colour TV game console allows you to decide which game you want to play - at surprisingly low cost. The console comes complete with two individual joystick controllers and is ready to accept any of the plug-in microprocessor game modules. All you do is connect the console to your TV antenna input, plug in the game module of your choice... and you're away! The game is absolutely safe: it is battery operated so it cannot harm you - and it will not harm your TV in any way if used according to instructions. Cat Y-1160

choose from these plug-in games modules

### 10 Game Supersport

Football, hockey, tennis, squash, basketball, gridball, twin target plus 3 solo games. Cat Y-1162

\$20<sup>00</sup>

### Car Race

All the thrills of the race track without the dangers: play it from your most comfortable arm chair! Cat Y-1165

\$25<sup>00</sup>

### Motor Cycle

Four games of skill for a single player: dragrace, motocross, stunt and enduro (a combination of all three). Cat Y-1163

\$29<sup>00</sup>

### Submarine

How many of the enemy ships can you destroy without being wiped out yourself? Cat Y-1167

\$27<sup>50</sup>

### Super Wipe Out

Six fascinating games of various complexity: Break-in I and II, plus Wipeout I, II. Cat Y-1168

\$25<sup>00</sup>

### Shooting Gallery

Twelve exciting games for one or two players. Cartridge and two rifles - short and long barrels. Cat Y-1169

\$29<sup>50</sup>

## Remote Controlled Dune Buggy

WOW! Just look at this 1/16th scale model Super Buggy Racer with true digital proportional radio control. (Beware of cheap imitations!) 5 functions, 2 speed action, dual stick transmitter, real pneumatic tyres... all the thrills of a full sized buggy. Amazing value - complete with buggy and radio control unit. Can you stand such excitement? Cat Y-2505

complete with radio remote control



NEW FOR 83

amazing value \$59<sup>95</sup>



# Computer Products

Now you can  
'talk' in any  
language!

The amazing

## CRAIG

# Language Computer

Going overseas or would you like to learn a foreign language? Now, thanks to the computer age, you can carry your translator/instructor with you in your pocket or purse! Convey your thoughts, needs and questions in another language and translate theirs into English. For speedy use, whole and partial phrases are 'programmed' into the computer and can be called up at the touch of a button. Single words or entire sentences - this technological marvel handles them all. For language students the Craig will random test you 'flash card' style or test you on specific subject categories (ie: parts of the body, foods, clothing, etc.). The built-in 4 function calculator also comes in handy for currency conversions. There is even a built in metric converter. A true quality hand held computer with RAM, ROM and CPU! Battery or Mains operated (with optional AC adaptor, which also doubles as a battery charger if you use rechargeable NiCad batteries). Use it once and you'll never go anywhere without your Craig Language Computer again.

NOTE: This is the same unit which originally sold in Australia for \$250 or more. Likewise, a quarter of a million units have been sold world-wide at similar prices. We have made a scoop purchase of a very limited quantity at WAY BELOW manufacturer's cost...so you reap the benefit!



Cat. Y-1340

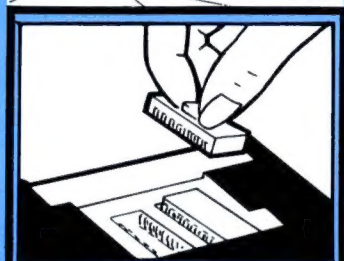
Original Value

**\$250<sup>00</sup>**

Now Only

**\$89<sup>50</sup>**

Below  
manufacturers cost



Insert the module of the chosen language...



Key in the word to be translated.....

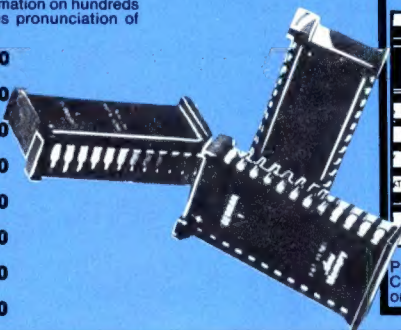


Press key marked L1 &, if the word is in the Craig's vocabulary, the translation will appear on the screen. It's that easy!

## SAVE AROUND 60% ON THESE TOP MODULES

Choose from 5 popular languages (with others obtainable); The Bar & Wine Guide with drink recipes and cellar master information; The Calorie Counter with comprehensive nutritional information on hundreds of foods and The Phonetic module which teaches pronunciation of French, German, Italian and Spanish.

FRENCH (Y-1341).....	<b>\$19<sup>50</sup></b>
JAPANESE (Y-1342).....	<b>\$19<sup>50</sup></b>
GERMAN (Y-1343).....	<b>\$19<sup>50</sup></b>
ITALIAN (Y-1344).....	<b>\$19<sup>50</sup></b>
SPANISH (Y-1348).....	<b>\$19<sup>50</sup></b>
BAR & WINE GUIDE (Y-1345).....	<b>\$19<sup>50</sup></b>
CALORIE COUNTER (Y-1346).....	<b>\$19<sup>50</sup></b>
PHONETIC (Y-1347).....	<b>\$19<sup>50</sup></b>



State of the art Microprocessor technology give you your own

# TIMES SQUARE DISPLAY



Cat. Y-1020

Businessmen ..... This amazing counter-sized moving letter display will attract real attention to your promotional campaign. The Dick Smith Point of Sale Moving Message comes complete with removable keyboard, power supply, mounting bracket and full easy-to-follow instructions. This programmable running display will bring 'Times Square' and customers to your doorstep!

- Attracts customers and holds their attention
- Easily change the message in seconds..at no additional cost
- Huge 235 character internal memory
- Safety memory battery back-up
- 9 different rotation speeds
- Automatic keyboard lock security
- Super bright flourescent tube for daylight indoor use.

Point of Information  
Computer

**\$279<sup>00</sup>**

IDEAL FOR:  
• Real Estate Agents • Clubs  
and Pubs • Movie Cinemas •  
Department Stores • Record  
Shops • Markets • Hardware  
Stores • And many more!!!!



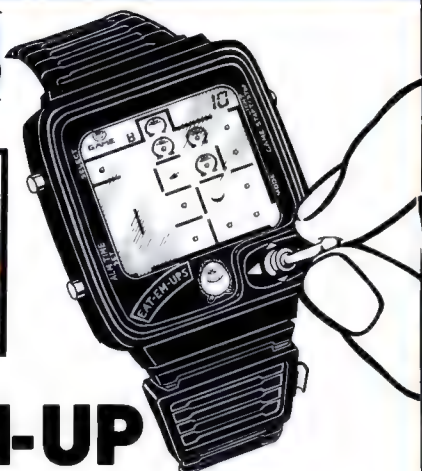
# DATA SECTION

## BIPOLAR TRANSISTORS

TYPE	CASE	POL MAT	V <sub>ce</sub>	V <sub>cb</sub>	I <sub>C</sub> mA	V <sub>ces</sub> @ I <sub>C</sub> mA	H <sub>fe</sub> @ I <sub>C</sub> mA	F <sub>t</sub> @ I <sub>C</sub> MHz	P <sub>tot</sub> IC mW	USE	COMPARABLE TYPES
AC126	TO-1	PG	12	32	100		140 2	1.7 10	500	Audio driver	2N406
AC127	TO-1	NG	16	32	500		105 50	1.5 10	340	Audio O/P	AC187
AC128	TO-1	PG	16	32	1000	0.6 1A	60-175 300	1 10	1W	Audio O/P	AC188
AC132	TO-1	PG	12	32	200	0.35 200	115 50	1.3 10	216	Audio O/P	AC188
AC187	TO-1	NG	15	25	1000	0.8 1A	100-500 300	1 10	1W	Audio O/P	AC127
AC188	TO-1	PG	15	25	1000	0.6 1A	100-500 300	1 10	220	Audio O/P	AC128
AD161	PT1	NG	20	32	3000	0.6 1A	80-320 500	0.02 300	4W	Audio Amp.	AD165, 2N1218, 2N1292
AD162	PT1	PG	20	32	3000	0.4 1A	80-320 500	0.015 300	6W	Audio Amp.	AD143, AD152, AD147
AF116	TO-7	PG	15	32	10		150 1	75 1	50	H.F. Amp.	AF135, AF136, 2N3127
AS215	TO-3	PG	60	100	10A	0.4 10A	20-55 1A	0.2 1A	30W	H.C. Sw.	OC28
AS218	TO-3	PG	32	100	10A	0.4 10A	30-110 1A	0.22 1A	30W	H.C. Sw.	OC36
BC107	TO-18	NS	45	50	100	0.2 10	110-450 2	300 10	300	S.S. Amp.	BC207, BC147, BC182
BC108	TO-18	NS	20	30	100	0.2 10	110-800 2	300 10	300	S.S. Amp.	BC208, BC148, BC183
BC109	TO-18	NS	20	30	100	0.2 10	200-800 2	300 10	300	Low Noise S.S. Amp.	BC209, BC149, BC184
BC109C	TO-18	NS	20	30	100	0.2 10	420-800 2	300 10	300	Low Noise High Gain	BC209C, BC184C, BC149C
BC157	SOT-25	PS	45	50	100	0.25 10	75-260 2	150 10	300	S.S. Amp.	BC177, BC307, BC212
BC158	SOT-25	PS	25	30	100	0.25 10	75-500 2	150 10	300	S.S. Amp.	BC178, BC308, BC213
BC159	SOT-25	PS	20	25	100	0.25 10	125-500 2	150 10	300	S.S. Amp.	BC179, BC309, BC214
BC177	TO-18	PS	45	50	100	0.25 10	75-260 2	150 10	300	S.S. Amp.	BC157, BC307, BC212
BC178	TO-18	PS	25	30	100	0.25 10	75-500 2	150 10	300	S.S. Amp.	BC158, BC308, BC213
BC179	TO-18	PS	20	25	100	0.25 10	125-500 2	150 10	300	S.S. Amp.	BC159, BC309, BC214
BC182(L)	SOT-30	NS	50	60	200	0.25 10	100-480 2	150 10	300	S.S. Amp.	BC107, BC207, BC147
BC183(L)	SOT-30 (TO-92/74)	NS	30	45	200	0.25 10	100-850 2	150 10	300	S.S. Amp.	BC108, BC208, BC148
BC184(L)	SOT-30 (TO-92/74)	NS	30	45	200	0.25 10	250-850 2	150 10	300	Low Noise High Gain	BC109, BC209, BC149
BC207	TO-106	NS	45	50	100	0.25 10	110-220 2	150 10	300	S.S. Amp.	BC107, BC182, BC147
BC208	TO-106	NS	20	25	100	0.25 10	110-800 2	150 10	200	S.S. Amp.	BC108, BC183, BC148
BC209	TO-106	NS	20	25	110	0.25 10	200-800 2	150 10	200	Low Noise High Gain	BC109, BC184, BC149
BC213(L)	SOT-30 (TO-92/74)	PS	30	45	200	.25 10	80-400 2	200 10	300	S.S. Amp.	BC308, BC158, BC178
BC214(L)	SOT-30 (TO-92/74)	PS	30	45	200	.25 10	80-400 2	200 10	300	S.S. Amp.	
BC327	TO-92 (VAR)	PS	45		1000	0.7 500	100-600 100	100 10	800	O/P	2N3638
BC328	TO-92 (VAR)	PS	25		500	0.7 500	100-600 100	100	500	G.P. Amp. Sw.	BC327, 2N3643
BC337	TO-92 (VAR)	NS	45		1000	0.7 500	100-600 100	200 10	800	O/P	2N3642
BC338	TO-92 (VAR)	NS	25	30	1000	0.7 500	100-600 100	200 10	800	O/P	
BC547	SOT-30	NS	45	50	100	0.6 100	110-800 2	300 10	500	S.S. Amp.	BC107, BC207, BC147
BC548	SOT-30	NS	30	30	100	0.6 100	110-800 2	300 10	500	S.S. Amp.	BC108, BC208, BC148
BC549	SOT-30	NS	30	30	100	0.6 100	200-800 2	300 10	500	Low Noise Small Sig.	BC109, BC209, BC149
BC549C	SOT-30	NS	30	30	100	0.6 100	420-800 2	300 10	500	Low Noise High Gain	BC109C, BC149C
BC557	TO-92 (VAR)	PS	45	50	100		110-330 2	150	500	G.P. Small Sig.	BC157, DS557
BC558	TO-92 (VAR)	PS	30	30	100		75 2	150	500	G.P. Small Sig.	BC158, DS558
BC559	TO-92 (VAR)	PS	30	30	100		125-600 2	150	500	G.P. Small Sig.	BC159
BC635	TO-92(74)	NS	45	45	1A	0.5 500	40-250 150	130 500	1W	Audio O/P	BC639
BC636	TO-92(74)	PS	45	45	1A	0.5 500	40-250 150	130 500	1W	Audio O/P	BC640
BC639	TO-92(74)	NS	80	100	1A	0.5 500	40-160 150	130	1W	Audio O/P	MU9610, TT801
BC640	TO-92(74)	PS	80	100	1A	0.5 500	40-160 150	130	1W	Audio O/P	MU9660, TT800
BCY70	TO-18	PS	40	50	200	.5 50	50 10	250 50	350	G. P.	BC212
BCY71	TO-18	PS	45	45	200	.5 50	100-600 10	200 50	350	G.P.	BC212
BCY72	TO-18	PS	25	25	200	.5 50	50 10	200 50	350	G.P.	BC213
BD137	TO-126	NS	60	60	1A	.5 500	40-160 150	250 500	8W	G.P. O/P	BD139
BD138	TO-126	PS	60	60	1A	.5 500	40-160 150	75 500	8W	G.P. O/P	BD140
BD139	TO-126	NS	60	100	1A	.5 500	40-160 150	250 500	8W	G.P. O/P	40409
BD140	TO-126	PS	80	100	1A	.5 500	40-160 150	75 500	8W	G.P. O/P	40410
BD262	TO-126	PS	60	60	4A	2.5 1.5A	750 1.5A	7 1.5A	36W	High Gain Darl. O/P	BD266
BD263	TO-126	NS	60	80	4A	2.5 1.5A	750 1.5A	7 1.5A	36W	High Gain Darl. O/P	BD267
BD266A	TO-220	PS	80	80	8A	2 3A	750 3A	7	60W	High Gain Darl. O/P	
BD267A	TO-220	NS	80	100		2 3A	750 3A	7	60W	High Gain Darl. O/P	
BD681	TO-126	NS	100	100	4A		500» 4A	1	40W	Darlington O/P	BD263
BD682	TO-126	PS	100	100	4A		750» 1.5A	1	40W	Darlington O/P	BD262
BDY20	TO-3	NS	60	100	15A	1.1 4A	20-70 4A	1 4A	115	Power O/P	2N3055
BF115	TO-72(28)	NS	30	50	30		45-165 1	230 1	145	V.H.F. Amp.	
BF167	TO-72(28)	NS	40	25			26 4	350 4	130	T.V. I.F. Amp.	
BF173	TO-72(28)	NS	25	40	25		92 7	550 5	230	T.V. I.F. Amp.	
BF178	TO-39	NS	115	185	50		20 30	120 10	600	T.V. Video Amp.	BF336
BF179	TO-39	NS	115	250	50		20 20	120 10	600	T.V. Video Amp.	BF338
BF180	TO-72(25)	NS	20	30	20		13 2	675 2	150	U.H.F. Amp.	BF200
BF184	TO-72(28)	NS	20	30	30		75-750 1	300 1	145	H.F. Amp.	
BF185	TO-72(28)	NS	20	30	30		34-140 1	220 1	145	H.F. Amp.	BF195
BF194	SOT-25/1	NS	20	30	30		65-220 1	260 1	250	H.F. Amp.	
BF195	SOT-25/1	NS	20	30	30		35-125 1	200 1	250	H.F. Amp.	BF185
BF199	TO-92 (VAR)2	NS	25		25		37» 7	550	500	H.F. Amp.	BF180
BF200	TO-72(25)	NS	20	30	20		15 3	650 3	150	V.H.F. Amp.	BF180
BF336	TO-39	NS	180	185	100		20-60 30	130	3W	Video Amp.	
BF337	TO-39	NS	200	300	100		20-60 30	130	3W	Video Amp.	
BF338	TO-39	NS	225	250	100		20-60 30	130	3W	Video Amp.	
BFY50	TO-39	NS	35	80	1A	.2 150	30 150	60 50	2.86W	G. P.	
BFY51	TO-39	NS	30	60	1A	.35 150	40 150	50 50	2.86W	G. P.	
BFY52	TO-39	NS	20	40	1A	.35 150	60 150	50 50	2.86W	G. P.	
BUX80	TO-3	NS	400		10A	1.5 5A		8	100W	Deflection, High current Sw. G.P. Power	
DS547	TO-92 (VAR)	NS	45	50	100	0.6 100	110-800 2	300 10	500	S.S. Amp.	BC107, BC207, BC147
DS548	TO-92 (VAR)	NS	30	30	100	0.6 100	110-800 2	300 10	500	S.S. Amp.	BC108, BC208, BC148
DS549	TO-92 (VAR)	NS	30	30	100	0.6 100	200-800 2	300 10	500	Low Noise Small Sig.	BC109, BC209, BC149
DS557	TO-92 (VAR)	PS	45	50	100	0.25 100	75-260 2	150 10	300	S.S. Amp.	BC177, BC307, BC212
DS558	TO-92 (VAR)	PS	25	30	100	0.25 100	75-500 2	150 10	300	S.S. Amp.	BC178, BC308, BC213



NEW FOR **83**



## EAT-EM-UP GAME/WATCH

The world's most popular game - now you can wear it anywhere! Eat-em-up if you can! This amazing watch even has a tiny 'joystick' built in for game control. And when you're not playing, it's a great LCD alarm watch with quartz crystal accuracy, night light, etc. Amazing value!

Cat Y-1046

ONLY **\$29<sup>50</sup>**

SEE PAGES 8-10  
FOR MORE  
ELECTRONIC GAMES

Know the time  
anywhere in the  
world!

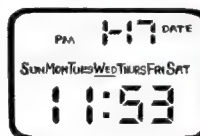
## World Time Dual Melody Alarm Watch

Now you can tell the time anywhere in the world! This fantastic watch not only displays the local time, but the time in 20 different time zones. The time is digitally displayed as well as graphically - it actually has a diagram of the world!

This attractive quartz accuracy LCD World Watch will surprise you with its features:

- Dual melody alarm - home time and world time alarms.
- LCD display which shows the date, alarm, home time and 20 different world times.
- World graphic display
- Night light

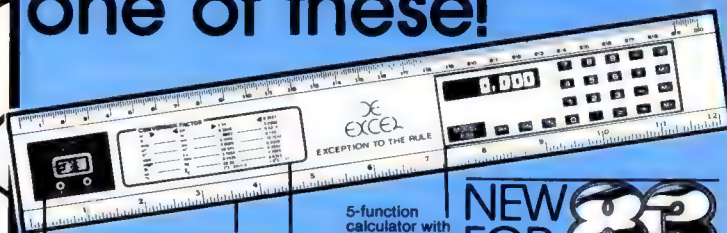
Great for the businessman, amateur radio operator or anyone who needs to know the time around the world! Cat Y-1051



value at  
**\$49<sup>50</sup>**



# Every student needs one of these!



300mm metric and 12" imperial ruler.

Clock shows hours, minutes, seconds, month and date.

5-function calculator with memory and %  
Handy imperial/Metric conversion table.

NEW FOR **83**

## Ruler/Calculator & Clock

What an amazing invention! Inside this 300mm (1ft) metric/imperial rule you'll not only find an accurate LCD digital clock (everything has them these days!) but a full function LCD 8 digit memory calculator, complete with percentage function. Yes, it's built inside the rule too! Absolutely superb gift idea - fantastic for students.  
(P.S. There's also a handy metric conversion table on the rule too, but that's hardly worth mentioning!)

Cat Y-1057

amazing  
value **\$19<sup>95</sup>**

All this  
for the  
price  
of a  
clock  
alone

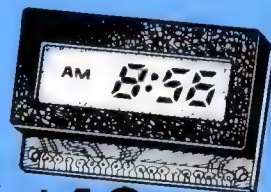
Now you can get your watch/clock  
batteries at a low cost

### Equivalent Guide

		JIS	Everyready	Mallory	Hi Watt
Cat S-3292	<b>\$2.95</b>	G10	389	10L12	S-120
Cat S-3293	<b>\$3.95</b>	G13	S76 303 357	10L14	S-200
Cat S-3295	<b>\$2.95</b>	G12	386 S41	10L24	S-150
Cat S-3296	<b>\$2.10</b>	G8	391	10L130	—
Cat S-3299	<b>\$2.00</b>	G3	392 S312	10L125	S3-140

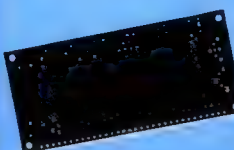
## Top Value Modules LCD/CLOCK Module

Superb LCD Alarm Clock Module pre-built on a PCB just 60 x 38mm! Quartz crystal controlled with accuracy to within 1.55 seconds/day. Conversion to stop watch or timer is easy - full data sheet enclosed. Draws just 0.1mA from 1.5V battery.  
Cat Y-1050



**\$19<sup>50</sup>**

## Thermometer/Clock Module



Module features huge bright red digital display, 6 display modes, time and temperature display (both C and F), alarm and control for clock, radio, etc. 12 or 24 hour operation. A full featured movement for use in thermometer, alarm clock, clock radio, instrument panel clock and appliance timer applications. Complete National data sheet included. Cat Y-1053

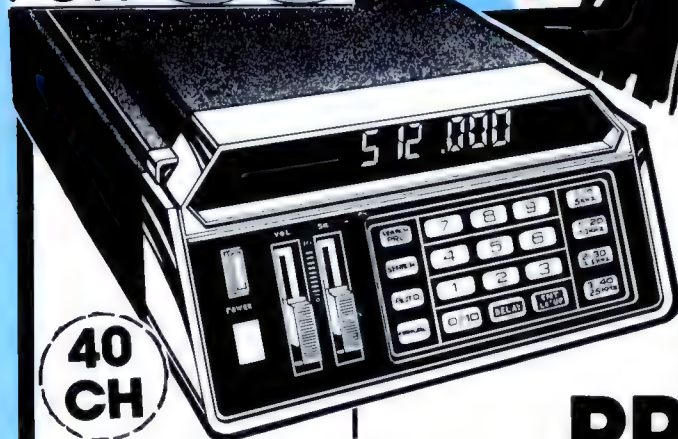
value **\$12<sup>95</sup>**



# Scanners

Get into the exciting world of scanning... the fastest growing hobby in the world!

NEW FOR 83



40 CH

Just some of the stations you can listen in to with a Scanner:

In the VHF band, there's a huge number of business radio users, the emergency services & authorities, international & local aircraft, airports, control towers, etc (aircraft band is only on the Bearcat 20/20) amateur operators, remote pagers, harbour and marine stations and many volunteer service groups, rescue groups etc. - and you can listen in to TV sound!

In the UHF band, catch all the action with more business users, UHF CB & amateur operators, security services, authorities, taxis, tow truck etc. news gathering personnel, aircraft company networks, councils and road boards, etc. plus two-way car telephones.

Here is incredible value for money! The PRO 40 represents the state-of-the-art in computerised scanning receiver design. Simply enter the commands on the keyboard and let the computer and frequency synthesizer take over. There's no need for crystals either. 40 frequencies can be selected and entered at the keyboard into channels ranging from 1 through 40. The Automatic Search Mode makes it possible to automatically locate a broadcast frequency with a pre-selected frequency range. This model can be powered by a car battery. Compare this superb scanner with any others and you'll be amazed at its low, low price.

- Completely microprocessor controlled with all channels fitted - no expensive crystals to buy
- 40 channel memory for those frequencies you want to keep referring to.
- 12V operated with internal battery memory back-up
- Touch-type splashproof keyboard for direct frequency entry
- Full band search facilities for unknown frequencies
- Priority channels & channel delay built-in
- Deluxe instruction manual written and prepared in Australia to suit Australian conditions. Cat D-2805

unbelievable price breakthrough

**\$399**

#### SPECIFICATIONS

Frequency range: 68-88MHz, 136-174MHz, 360-512MHz  
Scanning Steps: VHF 5, 10, 12.5, 25kHz UHF 10, 12.5, 25kHz  
Memories: 40 channels can be retained in memory  
Back-up: 9V battery holds memorised channels indefinitely  
Power: 12 to 16 volts DC at 0.6 amps

DON'T PAY 1500 OR MORE

## The new DICK SMITH PRO 40 SCANNER

NEW FOR 83



## Bearcat 200FB

The economy scanner - with the deluxe scanner features! Made by one of the world's leading scanner manufacturers, the Bearcat 200FB is microprocessor controlled to give a 16 channel memory with thousands of frequencies accessible with push-button ease.

It has automatic and manual search facilities over the full 66-88MHz and 138-174MHz VHF bands, plus 406-512MHz UHF bands; automatic and manual memory scanning and operates from 12V so it can be used mobile as well as at home through an optional 240V adaptor\*

#### Features:

- 16 channel memory
- Direct channel access - you don't have to step through other channels to reach the one you want
- Automatic channel lockout and priority channel functions
- Auto or manual squelch control for even greater flexibility
- Patented selective scan delay - adds two second delay so you don't miss the reply on a two-way conversation
- Patented Track Tuning - allows scanner to peak on each transmission automatically for optimum reception
- UL listed: tested for safe quality design and manufacture Cat D-2801

\*OPTIONAL ADAPTOR Cat M-9530 (12V 1 amp)  
BUY ONE WITH YOUR SCANNER  
AND YOU WILL PAY ONLY \$15 (normally \$17.50)

great value

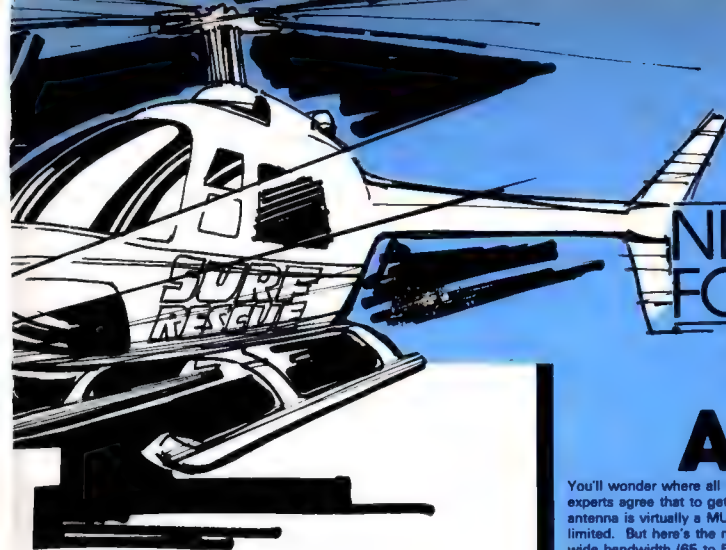
**\$349**

#### SPECIFICATIONS

Frequency range: 66-88MHz, 138-174MHz, 406-512MHz  
Memories: 16 channels can be memorized  
Back-up: Internal 9V battery gives permanent memory back-up  
Power: 12-15V DC

The economical scanner!

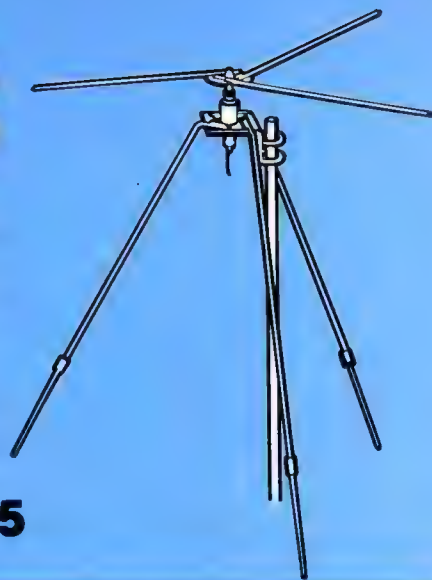




## NEW FOR 83 Scan X Antenna

You'll wonder where all those extra stations came from! Scanner experts agree that to get the most from your scanner, an outside antenna is virtually a MUST. Until now, the choice has been pretty limited. But here's the new Scan-X to solve that problem. Ultra-wide bandwidth (65 to 520MHz), and it comes complete with mast clamps & 15 metres of cable ready to assemble and put up. Will also stand alone on a patio, roof etc. if you don't wish to mount it on a mast.

Cat D-4430



Fantastic value at **\$49<sup>95</sup>**

Famous name  
Bearcat



## Bearcat 20/20 Scanner

The scanner that does EVERYTHING!

This mighty Bearcat has the widest coverage of all – it even covers the full 118–136MHz aircraft band! – and it also operates on BOTH 12V DC and 240V AC!

So now your scanner can go wherever you go. Listen in to the Jumbo Jets, the supertankers, the local emergency services – with the Bearcat 20/20, there's no limit.

Store up to 40 frequencies in the 20/20's microprocessor memory and scan through them at the touch of a button (very handy for those who want to listen in to just a few frequencies) or punch in two 'limits' and the 20/20 will search between them. All the action is right at your fingertips.

### Features:

- Two detectors – FM for normal use and AM for aircraft band use
- Selectable scanning speed (5 or 15 channels per second)
- High sensitivity – most bands less than 0.4uV – so you won't miss out on anything!
- Twin power supplies – 12V DC and 240V AC
- Single button call-up for aircraft, marine and weather bands
- Quality US made by one of the world's leading scanner manufacturers

Cat D-2810

value at only **\$485**

### SPECIFICATIONS

Frequency Range: VHF 66–88MHz, 118–136MHz.  
144–174MHz UHF 421–512MHz  
Scanning steps: VHF 5, 10kHz UHF 12.5, 25kHz  
Memories: 40 channels in two bands of 20 each  
Back-up: 9V battery  
Power: 240V AC or 12V DC

NEW FOR 83

want to know more  
about this fantastic hobby?

## DICK SMITH'S Australian Radio Frequency Handbook

OVER 5,000  
SOLD!

Dick's own book on scanning and scanners: that's the Australian Radio Frequency Handbook. It tells you what scanners are, how they work, how to get the most from them... but best of all, it contains a huge user directory listing the monitored frequencies of hundreds of VHF/UHF stations – the ones you never get to hear about. And even more, there are listings of HF stations, amateur repeaters, codes used, aircraft frequencies and practices, and much, much more!

The first edition sold out in just a few months. Now the new edition has been enlarged to include hundreds of new frequency listings scanner operators have told us about since the book came out.

A must for every scanner user – and VHF/UHF radio operator!

Cat B-9600

amazing value **\$12<sup>95</sup>**



NEW FOR 83

## No hands operation! DICK SMITH Headset Transceiver

NO LICENCE  
REQUIRED



Think of the uses! Wherever local area 'hands free' communication is required, the headset transceiver is the answer! No licence needed – voice operated, so you can forget it's on. All you do is talk! Comfortable, too!

Cat D-1150

- Construction workers
- Sportsman/Trainers
- Process Workers

ONLY  
**\$89<sup>95</sup>**

Complies with DOC specification  
RFM E006  
and does not require a licence  
to operate



# Calculators

Now a low cost  
Hand - Held  
Printer/  
Calculator

No wires, no weight, no worries! Here's a clever little battery operated printer/calculator which fits right into the palm of your hand. This attractive unit has a ten digit Liquid Crystal Display as well as all normal functions, percentage, square root, tab (floating decimal point) key, Print/No Print function, rounding-off key, paper feed key, memory, etc. Being a thermal printing/calculator, you never have to re-ink. Besides numerical information, display indicates various signs and symbols according to the function chosen. Weighs only 280 grams.

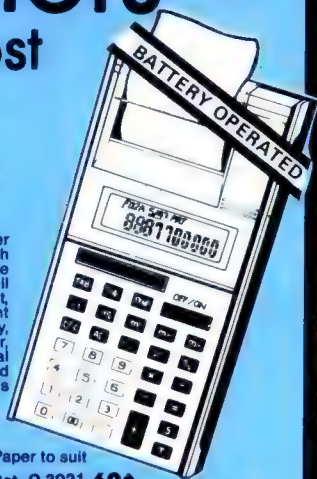
Cat. Q-3020

TAX FREE \$61<sup>93</sup>

**\$67**

Paper to suit

Cat. Q-3021 60¢



Amazingly powerful  
amazingly small



# CASIO®

**BASIC Language  
Hand-Held Computer  
FX-702P**

High performance programmable calculator which incorporates microcircuitry to provide for repetitions or complex calculation. The most important feature of this instrument is that it uses BASIC program language. This provides a conversation type language for problem solving. Operation is easy, even for the beginner. Programming is simple using on-key commands which permit highly efficient keying. Perfect for university and higher education students in engineering, sciences, higher maths, statistical analysis, etc. Also excellent for small businesses.

- 226 memories, up to 1680 steps
- LCD alphabetic dot matrix display with capacity for 20 alpha-numeric characters
- High utility variation of program steps and data memories
- 55 different functions
- Max. 10 groups of in-built programs
- Expanded calculation range
- Battery life over 240 hours on two lithium batteries
- Auto power-off
- Thin, light weight
- Super powerful

Cat. X-5100

TAX FREE \$177<sup>95</sup>

Amazing  
Value **\$199**

WAS  
**\$259**

look at Dick's prices  
for quality Calculators by  
**CASIO®**

**Casio FX-3600P  
Scientific/Programmable**

A superb addition to your range. This Casio FX-3600P scientific calculator has the added advantage of simple programmability, plus integrals! It has up to 38 steps programming capacity, with integrals, regression analysis and 7 memories. It's the ideal calculator for tech & university students (advanced high school students as well), engineers, technicians, laboratory workers, etc. with a 10 digit mantissa and two digit exponent, it's ready to handle just about anything you can give it! Liquid Crystal Display, with up to 1300 hours battery life. Comes complete with wallet and instructions!

Cat. Q-3105

VALUE

**\$59<sup>95</sup>**

TAX FREE \$54<sup>25</sup>



The last word in pocket calculators...

**Casio FX-602P Advanced  
Programmable Calculator**

Programmable scientific calculator for senior high school and university use. Particularly geared to engineering, higher mathematics, physics, space sciences, etc. Extra thin, pocket-sized unit with an alpha numeric display is capable of performing ordinary step-by-step and programmed calculations, computing values of 50 different functions.

- 88 memories, up to 512 steps
- Full memory retention
- Full alpha-numeric LCD display

10 segment non-volatile 512 step program • Convenient users function • Variable Data Memory expanded as needed • 33 parenthetical levels in complete formulas • Password function to protect programs • Ultra high speed calculation • 50 kinds of algebraic function (all programmable) • 10 kinds of 'jump' commands • Up to 9 subroutines & nesting possible • Battery life over 650 hours, auto shut-off • Thin, light weight • Powerful.

Cat. Q-3110

TAX FREE \$154<sup>44</sup>

**\$169**

WAS  
**\$199**

Get the most from your FX 602P & 702

**Cassette Interface**

Store data, programs, results, etc. on a standard cassette recorder with this interface unit. Matches the FX-602P & 702

Cat. Q-3125

ONLY **\$52<sup>50</sup>**

TAX FREE \$47<sup>99</sup>



TAX FREE \$116<sup>74</sup>

Cat. Q-3127

**Printer unit**

Add-on printer unit for the FX-602P & 702, for storing data, programs, etc. in hard copy form.

Paper to suit.....\$6.35  
per pack of five **\$5.65**

Cat. Q-3128

Value at  
**\$126<sup>50</sup>**



and by  
TEXAS  
INSTRUMENTS

## The economical slimline TI-30

Texas Instruments packs more into this budget priced slide-rule calculator than most other manufacturers do at twice the price! From elementary arithmetic, through the most complicated situations, this feature machine handles the lot!



Cat. Q-3737

### FEATURES:

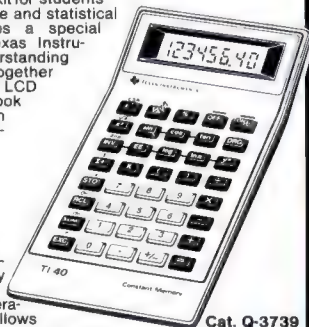
- Easy to read Liquid Crystal Display.
- AOS Algebraic operating system allows you to enter mathematical sequences in the same order that they are algebraically stated.
- Constant memory feature holds numbers in a user memory even while the calculator is turned off!
- APD Automatic Power Down provides for special power - saving features. The calculator turns itself off completely, after/between five and fifteen minutes of non-use.

TAX FREE \$19<sup>29</sup>

ONLY  
**\$21<sup>50</sup>**

## Ideal for Students TI-40 Scientific

Here is the perfect kit for students who need slide rule and statistical functions. Includes a special edition of the Texas Instruments book, 'Understanding Calculator Math'. Together this remarkable LCD calculator and book become a system for advanced problem solving.



Cat. Q-3739

### FEATURES

- Easy to read Liquid Crystal Display (LCD).
- AOS Algebraic Operating System allows you to enter mathematical sequences in the same order they are algebraically stated.
- Constant memory feature holds numbers in a user memory even while the calculator is turned off!
- APD, Automatic Power Down provides a special power-saving feature. The calculator turns itself off completely, after/between five and fifteen minutes of non-use.
- Free book, 'Understanding Calculator Math', included!

TAX FREE

**\$22<sup>45</sup>**

Value at **\$24<sup>95</sup>**

### Tax Free Prices

These prices are applicable to bona-fide students, etc. who can supply the necessary tax exemption form signed by their school or college. Enquire at any Dick Smith store.

## The business analyst who lives in your briefcase The powerful Financial/ Statistical Calculator

This amazing calculator will - at the touch of a button - take the drudgery out of many complex calculations that businesses are faced with every day. It is also LCD memory calculator with auto power down, scientific notation and constant memory



### FEATURES

- Sales tax and price
- Monthly payment for mortgages
- Present value of lease without residue
- Solving for APR
- Payment amount for sinking fund
- Forecasting with linear regression analysis
- Finding yield to maturity on a commercial bond
- Future value of a series of equal deposits
- and much, much more!!

Cat. Q-3785

TEXAS INSTRUMENTS

TAX FREE

**\$44<sup>70</sup>**

ONLY **\$49<sup>95</sup>**

complete with wallet and detailed owner's manual

## Now you can handle metres Metric Conversion Calculator

Metrics still a problem? Well, here is the calculator that takes the hardship out of metric conversions. This pocket sized LCD machine also does the normal functions: addition, subtraction, multiplication, division, percentages and memory too! Gallons to litres, inches to millimetres, miles to kilometres, square feet to square metres, and that's just the beginning. Converts Imperial to Metric and vice versa!

- Metric conversion functions
- Standard four functions
- Memory calculations, constant calculations, chain calculations, percentage calculations.
- Algebraic mode operation
- Leading zero suppression
- Very low power consumption and auto shut off
- Non-volatile memory and non-volatile storage memory



Cat. Q-3025

TAX FREE \$18<sup>74</sup>

**\$19<sup>95</sup>**

## Super slim - LCD Calculator



WAS  
**\$29<sup>50</sup>**

Now Only **\$9<sup>50</sup>**

You'll get used to having one of these delightful calculators in your pocket. Can be used in the home, office, factory, field or supermarket. You'll soon wonder how you ever did without a calculator. Beautifully made and ultra slim - you'll be proud every time you use your calculator. Supplied complete with batteries and instructions on use.

Cat. Q-3022

TAX FREE **\$8<sup>63</sup>**

## Unbeatable Value the Dick Smith Printer/ Calculator

MAINS OPERATED

A compact desk-top calculator with print or no-print function. This mains operated model is designed to afford the most efficient, simplest method of performing the broadest range of calculations!

- One memory function
- Automatic motor shut-off system
- Large easy to operate keyboard
- Easy to read green display.
- Non-print function uses less paper.
- Automatic constant.
- Floating and fixed decimal point.
- Compact size.
- 240 Volt Power Supply.

Cat. Q-3018



TAX FREE

**\$91<sup>39</sup>**

ONLY  
**\$99<sup>50</sup>**



# Computers

## NEW LOW PRICE New features the amazing BLUE LABEL SYSTEM 80

There's never been a computer available before with the sophistication of the NEW System 80 at such a low price. This very popular computer has been completely redesigned and in being redesigned it has benefited from earlier products on the market. Shortcomings in operator requirements, technology improvements, etc. have all been taken into account in the design of the new system. It now includes features normally found in models costing much, much more - computers such as the APPLE and the TANDY.

And now you can take advantage of our incredible price slash - save two hundred & fifty dollars over last year's price!

Why such a dramatic price decrease? Because so many System 80 computers have been sold, the initial huge development costs have been amortised. The System 80 now costs us less - so we pass this saving on to you!

But hurry, prices must start rising soon. The decreasing value of the Australian dollar and high inflation means that we won't be able to hold this low, low price for too long.

Buy now and save!



**OVER  
13,000  
SOLD!**

Compare these features:

- 16K memory - expandable to 48K with Expansion unit (Cat X-4020)
- Includes 12K Microsoft BASIC in ROM
- Compatible with almost all level II programs (thousands available)
- Works with any standard TV set or a video monitor
- Built-in cassette deck with level control, plus provision for another (external) cassette
- Uses powerful Z-80 microprocessor: The most popular CPU chip in the world! Cat X-4005

Amazing  
saving  
only

**\$499**

### Protect your Investment

Your System 80 is an investment in your future - protect it with a tight-fitting PVC cover and it will reward you with trouble free longer life.

A protective cover for your monitor also. Fits most small

Cat X-4008 **\$650**  
monitors.  
Cat X1197 **\$650**

### Give your computer SPEECH!

With this advanced speech synthesizer your computer can now talk to you simply and clearly - with an unlimited vocabulary.

By adding a truly flexible and easy-to-use speech facility to any computer, it opens up whole new fields of applications: computers for the blind, language teaching, computer-aided teaching for small children and the illiterate. And of course, Type-N-Talk is great fun for computer games. The Votrax is supplied with 240V power supply and user manual. You only supply a speaker and a cable to connect to your computer.



Cat X-3290

The Votrax  
Synthesiser **ONLY \$499**

OR MUSIC  
with the  
**FRED**  
Sound Synthesiser



Give your System 80 the ability to produce music with this Sound Synthesiser. It just plugs directly into the expansion connector with the audio output connecting directly into the AUX, TAPE or TUNER facilities of most Hi-Fi amplifiers. **\$149**

Cat X-3280

### Fan Form Binder

WOW! Now you can protect your precious printouts with this high quality binder. Will accept fan form paper that suits the Dick Smith Mini Printer and the ITOH Dot Matrix Printer (240mm & 204mm wide). Made from the finest Columbian Extruded Polyvinyl. **only \$795**



Cat X-3520

### Cables Parallel Printer Interface

The low-cost way to obtain a Centronics-type printer port for your System 80 computer without the need for a full expansion interface connector on the rear of the System 80.

Cat X-4013

**\$5650**



### Printer Cable

This is a universal cable, ideal for connecting a printer or other device to the printer interface or the X-4020 expansion unit. Fitted with edge connector one end and 57N-36 plug the other.

Cat X-4014

**\$4250**



### Expander/Adaptor Cable

Connects between the X-4020 expansion unit's cable and your System 80 enabling use of the Hi-Res adaptor unit, Fred Sound Synthesiser and Joy Stick Controller kit interface, when using a disc-based system.

Cat X-3285

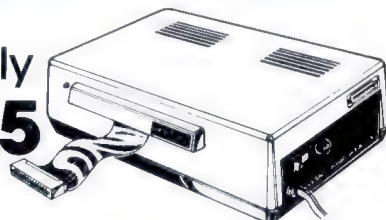
**\$4950**

### Unleash the potential of your System 80 . .

A terrific model - now with extra value! The first row of the 16K RAM is fitted as standard in this unit, with provision for an extra 16K (which gives the System 80/Expansion unit 48K total memory). And it's \$100 cheaper than the previous model! It provides as standard a floppy disk controller capable of controlling up to 4 single density disk drives. Although the exterior of this model is similar to the previous model, there are significant changes internally: the Centronics printer port is still standard, but the RS-232C interface & connector are now only available as an option. The S-100 motherboard has been removed, and is available as a second option for those who require S-100 expansion capability.

Cat X-4020

at only  
**\$425**



### 16K Expansion Pack

Don't be misled into paying extra for no better quality: ours are the premium quality 200ns type 4116 dynamic RAMS used by most microcomputers. **was \$100**

Upgrades an 8K to 16K OR a 16K to 32K OR 32K to 48K.

Cat X-1186

Pack of 8 x 4116 RAMS

**\$2250**

### S-100 Interface Card

With this card you can open the way to the many applications available via the S-100 bus system. **\$129**

### RS232C Interface

As an option with the expansion unit, the RS-232C interface makes your computer capable of communicating with modems etc. It may also be used for driving teleprinters or other serial printers. **\$99**

Cat X-4022





## System 80 Mk II to suit disk based operations

When cassette operation is too slow for business usage this System 80 is the answer. The normal in-built cassette mechanism has been removed (even though we've still allowed for external cassette connection) to allow for connection to a disk drive. We also added a numeric keypad for extra fast finger input, and a special ROM programme to allow for a flashing cursor on the screen for instant position recognition.

Cat X-4100

- Inbuilt 12K Microsoft BASIC
- High bandwidth direct video output
- Screen print facility (obtains printout of any 'page' on the screen)
- provision for full expansion to 48K of memory, to 4 floppy disk drives, printer & RS232 communications ports.
- Full upper and lower case video display, PLUS 15 key numeric keypad PLUS 4 software defined special function keys!

**Incredible Value! \$775<sup>00</sup>**

**Parents: Buy the one  
designed to stringent**

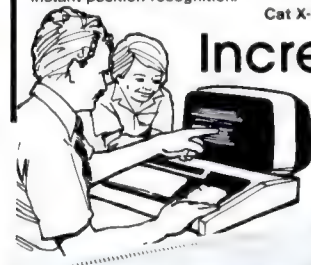
Department of Education standards

## The System 80 Educator

System 80 Mark II 'Educator' Computer offers outstanding value for money. It can be purchased initially in its low cost 'basic' form and then added to as funds and/or requirements grow. The Educator features a standard video interface which produces composite video signals which are fully compatible with standard Australian T.V. monitors.

Other features include:

- Typewriter-styled keyboard
- Upper and lower case display
- User programmable function keys
- Powerful 12.5K of ROM with Microsoft Level 2 BASIC
- Numeric keypad
- Inbuilt screen print facility
- Optional colour display
- Optional high resolution graphics



Cat X-4200

**ONLY  
\$775<sup>00</sup>**

## Save on Quality Disks

Superb quality 5 1/4 in minifloppy diskettes at a competitive price! Both types — hard & soft sector, at the same Time low, low price!

Buy soft sector floppy disks in bulk. You get 10 floppy disks plus disk library. Cat X-3512

**FOR ONLY  
\$54<sup>50</sup>**

**\$4<sup>95</sup>  
VALUE**



## Disk Library Holds 10 disks

Even at our prices, you should still treat your disks with care — especially if your company's financial records are on them! This disk library holds & protects up to 10 diskettes, in their jackets, in an upright position for easy use. Can be closed for storage. A cheap investment! Cat X-3515

**\$5<sup>95</sup>**



## Save a fortune on Disk Drives System 80 Disk Drives

Our disk drives go much further... for so much less! These superb disk drives cost so much less than the Tandy disk drive and they incorporate a high-quality MPI B51 drive mechanism together with matching inbuilt 240V power supply!

Each drive has high storage capacity - 40 tracks and is suitable for both single and double density recording. With double density recording, you can store more than 180K bytes per diskette!

The disk drives are suitable for use with most computers and disk controllers using the standard 34-way connection bus — such as the System 80 and TRS-80. (Don't pay their prices for disk storage!)

**ONLY  
\$495**

Cat X-4060  
Cat X-4061



★ Already configured for the two drives most users need: drive 0 (Cat X-4060) and drive 1 (Cat X-4061).

**Compare the Value**

NEW  
FOR

## Head Cleaner Disk Kit

Another area often overlooked is your disk drives. For longer life and absolute reliability, they should be cleaned at least once a week. These handy items make head cleaning easy.

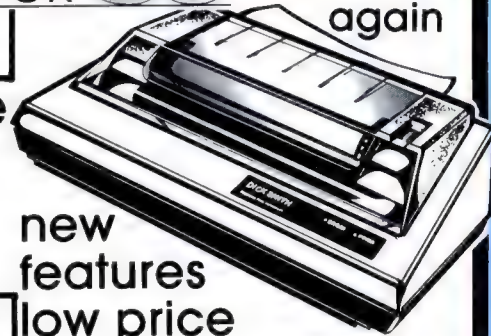
Cat X-3517

Replacement Disk Insert Cat X-3518 \$2.95

**ONLY  
\$14<sup>95</sup>**

NEW  
FOR

**Dick's  
done it  
again**



**new  
features  
low price**

## Mini Matrix Printer

We sold hundreds of the previous model — and it was only for 204mm paper! This model is the same price — but it takes standard 240mm paper! If you don't need word processor quality — you can save a fortune!

Cat X-3250

Ribbon to suit Cat X-3151 \$9.95

**ONLY  
\$395**

## Fan-form paper

**\$36.50**

2000 sheets continuous fan-form paper to suit above printer (Cat X-3250), and the previous printer (Cat X-3252). 204mm wide with sprocket holes. Cat X-3254

## Ribbons to suit printer

Cat X-3253

Replacement ribbons for above printer. Cat X-3253

**\$12.50**



# Computers

Australia's first direct modem to meet new Telecom regulations!



## The Dick Smith Direct Modem

Now, via telephone, you can communicate with the other personal computers to exchange data and programs. And... you can access the incredibly valuable information libraries of the world's 'data bases'. This is not the old type, unreliable and expensive acoustic-coupled model, but a true high performance direct connecting modem authorized by Telecom. Even more importantly, it will cost you less than half the price of a comparable acoustic modem!

Some of Dataphone's features include:

- Simple plug-in connections
- Full duplex operation for speed and convenience
- Standard RS 232C interface enables use with almost any personal computer
- Fully complies with both Telecom regulations and CCITT Recommendation V.21. This means it's not only legal, but also fully compatible with other modems
- Phone/modem switch for convenient operation
- Complete with approved power supply and detailed, easy to understand user manual.

Cat X-3272

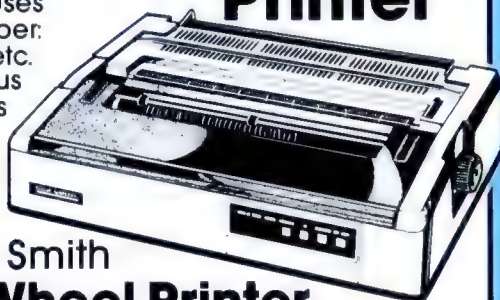
Telecom Authorisation No. C82/37/557

AND  
ONLY  
**\$199**

Save  
**\$200**

Uses  
standard paper.  
Letterheads etc.  
or continuous  
forms

## Word Processor QUALITY Printer



## The Dick Smith Daisy Wheel Printer

Delivers ultra-sharp clean copy up to 40cm wide! Uses standard paper, letterheads etc. Uses economical Diablo daisywheels and ribbon cartridges — so a wide range of fonts is available. Prints at three times the speed of a golf ball typewriter and is suitable for most currently available microcomputers.

Cat X-3265  
Printer Ribbon to suit above printer Cat X-3266 \$3.50

WAS \$1990.00  
NOW

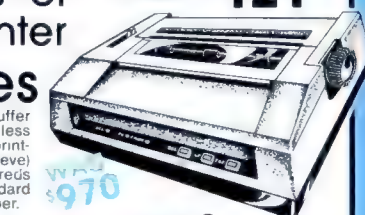
**\$1790**

SAVE \$121

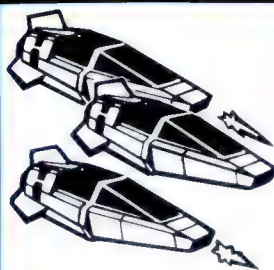
We sold 1,000's of  
our previous printer  
New Features

Our very newest model with built-in 2K buffer allowing storage of data to be printed — less down time on the computer. Numerous printing types. Superb (you've got to see to believe) high resolution graphics. You'll save hundreds of dollars on the printer! Accepts both standard stationery and fan-form (tractor feed) paper.

Ribbon to suit printer (Cat X-3260) \$9.95  
Cat X-3261



ONLY **\$849** Cat X-3260



### Killer Gorilla ..... \$24.50

Based on the incredibly popular Donkey-Kong Arcade game, this version will keep you busy for hours while you try to rescue the maiden from the gorilla atop the building. Terrific graphics and sound. Cassette based. Req. 16K. Cat X-3592



### Jungle Boy ..... \$19.50

Ever wanted to be Tarzan? This program gives you the chance to see if you'd survive every thing from rock slides to cannibals. On cassette. Req. 16K. Cat X-3590.

### Galactic Trader ..... \$12.50

If military life is not your scene and if making deals and bartering is, then your game is trader. Your object is to make a fortune by trading commodities throughout the galaxy. 10 levels of difficulty. Cassette based. Req. 16K. T1, T3, S1, S2. Cat X-3678.

### Beta Blitz ..... \$9.50

Your pilot, your mission is to destroy the enemy's ground installations, on a high speed bomb run. Fight your way through the real-time ground and air attack. Incredibly fast and exciting. Cassette based. T1, S1, S2, T3. Cat X-3683

### Depth Charge ..... \$11.95

The latest version of the arcade favourite. Your mission is to destroy the enemy submarine pack. Good graphics and includes sound. Cassette based. Req. 16K. T1, S1, S2. Cat X-3686

### Starfighter ..... \$44.90

You start out as a new mercenary pilot police officer. Your job is to protect Landbase Control. You must identify spacecraft — some could be enemies! Work your way up to Star Lord. Great graphics & sound. Twin Cassette pack & manual. Req. T1, T3, S1, S2. Cat X-3674

#### SUITABILITY OF PROGRAMS

S1: System 80  
S2: System 80 MK11  
T1: Tandy Model 1  
T2: Tandy Model 3

look at this  
exciting range  
of System 80  
**Games  
Software**

### Star Warrior ..... \$22.50

Utilising good graphics & various levels of play. Your aim is to hunt down the military governor of 'Fornax' & to destroy his installation. 19 command options. Cassette based. Req. 16K. S1, S2, T1. Cat X-3643.

### 3D Tic-Tac-Toe ..... \$14.50

The familiar 'noughts and crosses' game, expanded and made more challenging. There are four grids on the screen, one behind the other. You play the computer — but watch out — it's shrewd! Cassette based. Req. 16K. T1, S1, S2. Cat X-3671

### Air Traffic Controller

..... \$12.50  
If you've ever wondered why controllers are so highly paid, this will answer your questions. Your task is to safely manoeuvre 10 aircraft between the two airports and/or various points within your control 'area'. A time limit of 99 minutes is allowed for you to complete the task. The ability to 'plan ahead' could lead you into a new career. Cassette based. Req. S1, S2, T1. Cat X-3681

### Space Invaders ..... \$11.95

The ever popular arcade game that has become a cult! Can you shoot down the aliens before they destroy you and the Earth? Fast moving real time graphics. Cat X-3699

### Asylum ..... \$19.50

The latest 'role playing game' in which you get out of the asylum. You are placed in a padded cell & your job is to find a way out. Many items to aid you can be found along the way & the use of ordinary commands will determine your ability to survive. Definitely NOT for those who have little patience. Cassette based. Req. 16K. S1, S2, T1. Cat X-3687



### Institute ..... \$27.50

If you got out of Asylum try this one. As with Asylum you start in a room and your aim is to get the heck out of there. The only clue, your dreams! Much improved graphics and vocabulary. On Cassette Req. 16K. Cat X-3661

## Educational Software

### Scurve Invaders ..... \$11.95 Hangman/Concentration

A unique program that combines basic maths drill with the ever popular 'Space Invaders' game — practising maths has never been so much fun! Before shooting a Scurve with the Laser, the player has to feed in the correct data to the Spaceship computer. Cat. X-3694

### Alphabet/Rhyme Time

..... \$11.95  
Alphabet Countdown is a real time game in which sets of words taken at random from a large group must be placed in alphabetical order, in the shortest possible time. Rhyme Time displays a series of unfinished Rhymes, and the player has to type in the missing word from clues given in the rhyme itself. Cat X-3698

### Typing Tutor ..... \$25.50

An interactive program that teaches you to touch type. It claims to teach typing skills faster than any other method. Now with graphic display of keyboard on the screen, making it even easier. Cat. X-3682

### Austax Form ..... \$35.00

Produced in association with the Aust. Dept. of Taxation with the assistance of qualified taxation specialists. It will provide a printed summary which can be sent in with your return. The program takes you through the tax form step by step & provides on-screen prompts. Cat. X-3762

### Rain Analyser and Predictor ..... \$12.95

Is designed for the man on the land or the agriculture student. The package can store rainfall data for a particular location over a period of 25 years. Detailed graphs can be produced for individual periods as well as future predictions. Cross analysis of any two weeks or months and detailed printed reports are also available. On cassette. Req. 16K. T1, S1, S2. Cat X-3767

Two programs which are not only great to play, but also help to increase familiarity with words. Hangman is the computer version of the well known word guessing game — complete with animated graphics 'man' getting hung. The words can be chosen by either the program or a second player. Concentration is the computer version of the famous TV quiz game. Two players or teams have to match prizes behind numbers on the screen, then guess the mystery word. Req. 16K. S1, S2.

Cat X-3696

### Stock Market Game

..... \$14.95  
Ever wanted just to dabble in the market. Here is your chance, and it won't cost you a cent. Allows you to set up your own portfolio and then control your fortunes by buying and selling just as in the real market. Be careful you could lose your shirt! On cassette. Req. 16K. Cat X-3768



## System 80 Utility Software

### Step by Step BASIC

A course to take beginners into BASIC programming! Three cassettes containing numerous individual lessons and a detailed instructional manual. Highly recommended. Cassette based. REQ. 16K

Cat. X-3651 \$49.50

### MMS FORTH

The exciting new FORTH programming language. It runs from 10 to 20 times faster than ROM BASIC! Minimum 16K & one disk drive. T1, S1, S2.

Cat. X-3688 \$199

### Microsoft FORTRAN

Ideal for science & engineering applications. The Fortran-80 package includes full ANSI standard Fortran X32K-1966, except the COMPLEX data type. Features include single byte LOGICAL variables, mixed mode arithmetic expressions, error trapping, diagnostic output, extensive subroutine library and users may write non-standard I/O drivers. Requires 32K. Disk based. T1, S1, S2.

Cat. X-3689 \$199.00

### Serial loader, BASIC

A program that enables loading of programs written in BASIC from another computer via the RS-232C interface.

Cat. X-3689 \$24.50

### Z-80 Disassembler

A program which produces an assembly language listing from Z-80 machine code stored in memory. Very handy when you are trying to analyse machine language or 'SYSTEM' programs, to find out how they work (or why they don't). Written in BASIC and provides an ASCII decoding function as well as the mnemonics - so you can spot stored messages, etc. Requires 16K. T1, S1, S2.

Cat. X-3690 \$24.50

### Memory diagnosing

Ever been struck with a problem in your system that you can't quite figure out? Then this is the answer. With incredible ease you can test your complete systems operation, from memory to disks. Disk based. Includes detailed instructions. S1, S2.

Cat. X-3763 \$24.50

### Micro Dos

A low cost BASIC disk operating system for expanded System-80 & TRS-80 systems which are running from 1 to 4 disk drives (either 35 or 40 track). A really easy to use DOS, designed especially for business & professional use. It communicates with the user & with user programs entirely by BASIC commands.

Comes with 5 utility programs on the disk. Requires at least 16K & one disk drive. S1, S2, T1.

Cat. X-3555 \$44.95

### NEW DOS-80

The very latest & improved version of Apparat's sophisticated NEWDOS/80 disk operating system. Provides virtually every function & facility needed by the serious programmer & software development engineer. Complete with a user manual, in a ring binder, which is updated by the publisher if you register as a user. Disk. Req. 32K T1, S1, S2.

Cat. X-3565 \$199.00

### Z-BASIC

An interactive compiler which handles most of the commands & statements available in Level 11 Microsoft BASIC. Lets you compile your BASIC programs, so that they run up to TWENTY TIMES FASTER than with the ROM interpreter! Disk version, but comes on cassette so you can use it with the DOS of your choice. Needs 16K, but can handle larger programs if you have 32 or 48K.

Cat. X-3570 \$79.00

## Games

### Penetrator

You are the sole survivor of a fighter squadron whose mission is to invade the enemy defence rings and to blow up their illegal neutron bomb store.

This package even allows you to create your own landscapes at will. Twin cassette. Req. 16K. S1, S2, T1.

Cat. X-3673 \$34.50

### Simutek package 1

Not just one, but FIVE fantastic space fantasy games in one package! (Graphic Trek 2000, Invasion Warg, Star Wars and Space Target). Great graphics which require split second responses! Comes complete with instruction booklet. Outstanding value! 16K, T1, S1.

Cat. X-3685 \$14.50

## Computer Cassette tape

Yes! We're now stocking the famous 'Microsette' computer verified cassette tape. Five minutes per side gives over 40K capacity per side.



X-3502 \$225

## Double Density Adaptor

Adapt your System 80 or TRS disks for double density!

Cat. X-3540

\$239

## Light Pen

● Ideal for System 80 & TRS-80 ● Req. 9V battery - long life - complete with instructions and hints.



Cat. X-3645

WAS \$29.50

\$12.95

# System 80 Business Software

## Invoicing System

This powerful, efficient invoicing system will run either as a stand alone system, or interactively with your Stock Control & Pricing system. It provides full invoicing session summary reports, including sales tax and revenue totals. It allows for credits or returned items. On Disk. Req. 32K Complete with manual. T1, S1, S2.



\$99

Cat. X-3751

## Accounts Receivable

This package gives you the vital information concerning the 'heart' of your business, i.e. Cash flow. At a glance you can tell who owes you what, how much & for how long. Reports such as the Trial Balance, Debtors Ledger & Posting summaries. Requires 32K, two disk drives & an 80 column printer. S1, S2.

\$149

Cat. X-3756

## Accounts Payable

Maintain control over where your money is going. This package will maintain up to 100 individual creditors using the 'open item system'. Provides detailed reports on all your purchases and payments. Req. 48K. Machine with 2 disk drives and an 80 column printer.

\$299

Cat. X-3754

## General Ledger

Lets you know exactly how your business is running & provides the necessary information to make business decisions based on accurate reports, as to your company's status. Complete with comprehensive manual & requires a System 80 with 32K, 2 disk drives & an 80 column printer. S1, S2.

\$149

Cat. X-3752

## Professional Wordprocessing

A powerful professional yet easy to use Word Processor System. Written in Australia, it provides a host of features including unlimited text insertion, the ability to print mailing labels & to merge a name & address file with a standard letter format. Plus a 'help' facility, now with line numbering. Written in machine code for really FAST operation, it comes complete with an easy to read User Manual. Req. 32K & at least one disk drive. S1, S2, T1. New version now also operates on System 80 & TRS 80 Module.

\$175

Cat. X-3761

## Payroll Budget

At last - a Payroll program that does it all. This new package caters for up to 100 employees and produces payslip, coin analysis, cheque analysis, bank deposit advice, cost centre report, payroll tax report and group certificates. Also provided for is up to 5 different automatic deductions. On disk. Req. 32K. S1, S2, T2.

\$149

Cat. X-3769

## Feed Budget

Allows the accurate management of feed requirements for a dairy herd. Will assist in ensuring that cows calve in good condition and that sufficient reserves are maintained until spring growth has started. On disk. Req. 2 3K. T1, S1, S2.

\$49.50

Cat. X-3770

## Mailing System

Provides storage for 450 names and address on one disk or up to 650 using two drives. Provides seven 'fixed' fields and two 'user definable' fields. Sort labels by any field and print in sorted order. Will also print 'own' labels for return mailing. Well documented. On disk. Req. 32K. S1, S2, T1.

\$69.50

Cat. X-3771

## Stock Control & Pricing

A stock control & pricing system for small businesses. Handles up to 2750 stock lines & offers powerful features like Australian Sales Tax reporting, fast machine language sorting, ability to produce up-to-date price lists & compare accounts with 'on hand' figures plus much more. Req. 32K of RAM & 2 disk drives. S1, S2.



\$149

Want to store large amounts of data?

## Datfile

is for you



A program which lets you computerise virtually any data file currently on cards etc. Membership & mailing lists, client and customer details, product information - you name it! Datfile lets you call them up on the screen, add new entries, Make changes, sort all entries, select by category, print out so on. Comes on disk. Req. 32K & at least one drive. S1, S2.

Cat. X-3760

\$99

## Share Market Analysis

A valuable tool for the part time dabbler or for anyone with an interest in the stock market. It can provide both 'point & figure' charts for individual stocks or for market groups. Fully menu driven with detailed instruction manual & can handle up to 45 different stocks. Disk based. Req. 32K. S1, T1, S2.

Cat. X-3765

\$39.50

## Pig Farm Management

Provides a very detailed report at your pigery. All data relating to the enterprise is keyed into the system using a unique set of 'data cards'. The system then goes to work and produces a very detailed series of printed reports that will give you an excellent picture of the viability of the enterprise. On disk. Req. 32K.

Cat. X-3772

\$299

## DICK SMITH QUALITY MONITORS WHY PAY MORE?

### Economy B & W Monitors

The System 80 doesn't need a video monitor - but can be used with one. A video monitor gives the sharpest, clearest image - and this one is really economical. It can be used with most computers on the market - and is much cheaper than other brands! Compare: and be surprised!

Cat. X-1196

\$149.50

### Economy Green Phosphor Monitor

If you're seriously into computers then this is the monitor for you. Provides a sharper, brighter image, and you avoid eye fatigue! Suited more for the professional rather than the hobbyist.

Cat. X-1198

\$199

### High Resolution Monitor

With this monitor added to your computer system, you'll be able to use it for almost limitless applications: For accounts/statistics, education, medical, amusement & for any purpose data & video display. The anti-glare screen with its jitter & ghost free image makes viewing much easier & sharper and allows 80 characters with 24 lines. A must for the serious computer hobbyist or professional.

Cat. X-1200

\$279





# Amazing breakthrough A Colour Computer

## The Incredible **DICK SMITH** **VZ-200** Personal Colour Computer

Here it is at last – the personal computer you've been waiting for! With all the right features: colour graphics, sound, standard Microsoft BASIC, both RF and video output, and lots more. Yet thanks to modern technology and Dick Smith's massive buying power, it will cost you only \$199 – far less than any comparable machine! Because of this dramatic breakthrough in terms of value for money, our new VZ-200 provides you and your children with the ideal opportunity to learn about computers and programming.

### Big Features:

#### COLOUR GRAPHICS:

- 8 colours
- 128 x 64 high resolution graphics mode or 64 x 32 – (mixed graphics & text mode)

#### SOUND FACILITY:

- 2.5 octaves – PLAY MUSIC!

#### INVERSE VIDEO:

- For dramatic screen displays!

#### FULL 8K OF RAM:

- More than the VIC-20!

#### VZ-200 takes the pain out of studying.

For a student at any level, the VZ-200 can make studying easier and more effective. You can use it as a calculator, for equations and higher maths, and as a filing system and notes library. Everything you input can be recalled instantly. And you can use it, day-to-day, to work out assignments and prepare projects.

#### Learn computer programming. Completely free of charge.

Your VZ-200 is a fully functional computer right from the start, but to get the most out of it, you should take the opportunity to learn how to program it yourself. BASIC, the universal computer programming language, is built right into the VZ-200. All you have to do is read the step-by-step instruction booklet that comes with every unit, and you'll be able to create your own BASIC software programs. There's no extra equipment to buy, and no extra software tape is necessary. It's an easy and inexpensive way to learn the coveted skill of computer programming and, what you learn on the VZ-200, you can use to program just about any other computer in the world.

#### The computer for beginners.

Even though the VZ-200 is a powerful and sophisticated computer, it has been especially designed for beginners to get started on. So everything, from the keyboard, to the ready-to-run software, is easy to master.

#### The keyboard.

Unlike most home computers, the VZ-200 provides you with a full-size movable-key, keyboard. Single keystroke functions save a lot of typing. The keys themselves are specially arranged so it's hard to make a mistake, even if you don't type that well to begin with.

#### Minimal switches.

In keeping with the simplified format, we've even eliminated the confusing number of switches and controls on the keyboard. An LED power indicator indicates when the unit is operational.

#### Everything is built-in.

From the BASIC programming language, right through to connections for cassette tape recorders and other peripherals, the VZ-200 has virtually everything you need built right in. Everything hooks together with simple, standard plugs and all are clearly labelled.

#### Expand your computer as you expand your studies.

The VZ-200 is designed to work with a number of available expansion units, so you're not locked into one system. You can hook up any type of audio cassette tape recorder, and with an inexpensive interface unit, you can connect any standard text or graphic printer. So you can expand your system at your own speed and in accordance with your own budget.

#### An ordinary cassette recorder can become your computer memory & storage.

Just hook up any ordinary cassette tape recorder to your VZ-200 and you can store programs and files on standard audio tape cassettes. There's no expensive hardware to buy and no complicated connections to worry about. Everything is built right into your VZ-200. You just plug it in and you can start a whole cassette tape library of programs and files.

#### Improve your memory

To make even fuller use of your VZ-200 you can buy a 16K Memory Expansion Module, which plugs into your computer easily, and gives you more memory to hold more information, perform more functions and save you more time.

#### Get it down in writing!

You can also buy a text or graphic printer connected to a Printer Interface Module to work with your VZ-200, which will provide you with crisp, clear hard copies of vital information and computer generated illustrations. The Printer Interface Module allows you to use any standard Centronics-type printer.

#### Ready-to-run software.

Your VZ-200 has been designed to operate with a wide variety of software programs ranging from Home Accounting all the way to video games. All you have to do is load them in and your computer is ready to carry out the type of functions the program commands.

#### The sooner you get the VZ-200, the sooner you can enjoy the benefits.

There's no reason to resist any longer. The VZ-200 overcomes all the objections you've ever made to getting a computer. It's simple. It's powerful. It's expandable. And it's within your budget.

Make your entry, or your children's entry, into the modern world of computer technology as painless as possible. With the new VZ-200.

#### Here are just some of the VZ-200's many exciting features:

- 8K bytes of user RAM memory built-in – more than enough for most personal computer jobs.
- Powerful Microsoft BASIC in ROM – so your VZ-200 understands easy-to-follow BASIC commands as soon as you turn it on.
- Full colour graphics capability: 8 colours in medium-resolution (64 x 32) graphics/text mode, 4 colours in higher-resolution (128 x 64) mode.
- Built-in sound/music facility: plays any note in a 2-1/2 octave range, with 9 different note durations.
- Large 45-key keyboard, with full-stroke keys in typewriter layout. Auto-repeating keys, too.
- Single keystroke entry of BASIC commands, for faster and much more convenient operation.
- RF output (channel 1) for use with any normal colour (or monochrome) TV receiver.
- Direct video output for use with a colour TV monitor for better results.
- On-screen cursor controlled editing – much easier and faster than line editing.
- Industry standard Z-80A processor.
- "COPY" command to print out the screen on your printer (when you have one)
- Easily expandable using optional 16K memory expansion module, Centronics printer interface module (availability shortly).

## Specifications

**CPU:** Z80A running at 3.58 MHz  
**Memory:** ROM, 16K Byte BASIC Interpreter and Operating System.  
 RAM – 8K Byte expandable to 24K Byte (Optional)  
**Screen:** Text mode: 32 Columns by 16 Rows. Graphic 128 x 64 – high resolution graphics mode 64 x 48 – mixed graphics & text mode.  
**Keyboard:** 45-Key full size moving-key rubber keyboard. Automatic repeat keys.

**Sound:** Buzzer "Beep" sound for key entry. Musical notes: 2.5 octaves.  
**Cassette interface:** Baud rate at 600 bps.  
**Printer interface:** (Optional) Connects to Centronics-Bus printer.  
**Power interface:** Single 9 Volts DC at 1200mA (adaptor included).  
**Language:** Microsoft BASIC Interpreter.  
**Display:** RF output, directly connect to TV set. Video output, connect to PAL colour monitor.



in personal computers!

# for less than \$200

The incredible VZ-200  
amazing value

at only **\$199**

Cat X-7200

## 16K Memory Expansion Module

Expand your VZ-200 Computer's program memory to a whopping 24K with this compact and economical 16K Memory Expansion Module. It simply plugs into the expansion socket at the rear of the computer.

Cat X-7205

VALUE **\$79<sup>00</sup>**

## Colour Monitor

Don't pay a fortune for a Colour Monitor. If your computer has colour graphics, you can't beat the Dick Smith Colour Monitor for quality and reliability at a low cost.

Cat X-1195

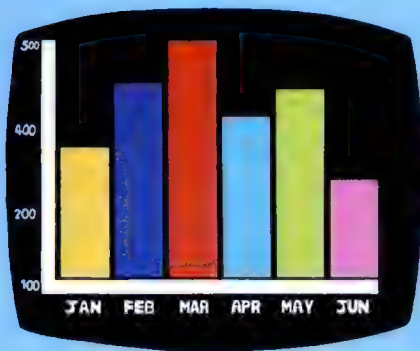
VALUE **\$389**

## Printer Interface Module

For serious computing, you need to be able to get a printed "hard copy" of your programs and data. This low cost, compact interface module plugs into the back of your VZ-200 and lets you connect it to any standard centronics-type printer. (Our X-3250 is very suitable).

Cat X-7210

ONLY **\$49<sup>50</sup>**





NEW  
FOR





When you've finished playing games . .

The Dick Smith

# WIZZARD

is a brilliant personal  
Computer

**Why buy a TV game that's JUST a TV game?**

With the Dick Smith Wizzard you can get all the fun and enjoyment of one of the world's best TV games . . . and when you're through playing games, you're ready to start serious computing.

Just compare the Wizzard with any other personal computer and be amazed at its power! And all this for much less than you'd pay for JUST a TV game or JUST a personal computer!

**WIZZARD COMPUTER SPECIFICATIONS**

**Language:** BASIC

**Processor:** 6502 (same as used in the \$1,000 plus Apple!)

**RAM Memory:** 17 bytes, expandable externally to 64K. (Approximately 11 K bytes of RAM in basic machine is available for user programs - much more than many others!)

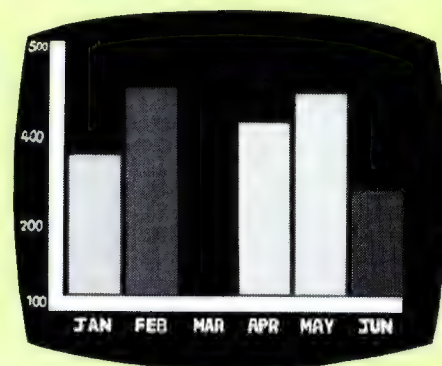
**ROM Memory:** 14 bytes total. 2K is fixed inside, while 12K may be removed to allow you to use alternative firmware.

**Keyboard:** Rugged and moisture-resistant membrane type (optional plug-in moving-key keyboard also available). Separate power and reset switches, with two joysticks available for cursor control.

**Graphics:** Programmable character generator type. Up to 255 user definable characters available, with total resolution of 49,152 pixels.

**Colours:** 16 different user-programmable colours. (Background, characters and character background independently programmable).

**Sound:** 2-1/2 octave range, with up to 3 simultaneous notes. Sound output to TV or monitor amplifier.



**The Wizzard**

Complete with keyboard/hand controllers, approved power supply, TV output and bonus game cartridge. Cat Y-1600

**\$295**

**BASIC cartridge**

Just plug it in and you're computing in the easy to understand BASIC language - the world's most popular computer language. BONUS computer instruction manual, written by Jamieson Rowe, SMIREE: The Fun Way Into Computers. Cat Y-1605

**\$69<sup>50</sup>**

**Moving key keyboard**

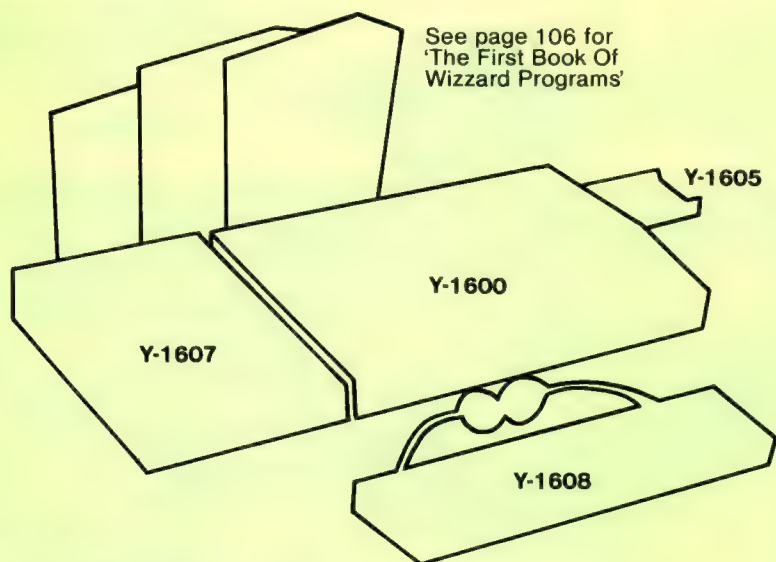
For more professional computer operation, a keyboard offering high tactile response is available. It drops into the space normally occupied by the hand controller keyboard, and plugs into the same sockets. A must if you're serious! Cat Y-1608

**\$49<sup>50</sup>**

**Data Cassette**

Save those programs! Why spend hours re-keyboarding them when you can save them on ordinary cassettes with this plug-in recorder. Slots onto Wizzard body, simple one plug connection for power and data. Cat Y-1607

**\$89<sup>00</sup>**



**Spare hand controllers**

Just in case your Wizzard gets such a punishing your hand controllers are damaged . . . low-cost spares are available! They just plug in!

Left controller Cat Y-1601  
Right controller Cat Y-1602

**\$19<sup>95</sup>** (each)

... and it's also a brilliant  
TV games console. (see pg. 6)



# Computers

## The Incredible VIC-20 Colour Computer now down in price

You don't have to know anything about electronics or computer programming to enjoy the advantages of the superb VIC-20 Colour Computer. Anyone can operate it with ease and confidence. It has a large typewriter-style keyboard with programmable function keys, and can be connected to any standard black and white or colour T.V. monitor. The VIC 20 offers limitless applications to students, teachers, professional and technical people. It can take the drudgery out of routine accounting tasks around the home or office, and/or you can play a wide variety of games such as chess, space invaders etc.

This remarkable breakthrough in computer technology represents outstanding value for money possessing features like:

- Colour graphics in up to eight colours - directly addressable from the keyboard.
- Memory expandable up to 32K with plug-in modules.
- Typewriter-style keyboard, with programmable function keys: you're really in control!
- An in-built tone generator for music and sound effects.
- It's ready to use immediately you turn it on - and it's expandable as your experience and budget allow.

### Dust Cover

Don't let dust and dirt spoil your system! Keep it clean and protected with a VIC-20 Dust Cover. Cat X-2001

**\$5<sup>95</sup>**

**SAVE \$100**



Cat X-2000

**WAS**

**~~\$399<sup>00</sup>~~**

**NOW ONLY**

**\$299<sup>00</sup>**

### Paddle Controls



For two player games on the VIC-20 such as 'Tennis', use these Paddles. Small and compact, they allow movement left or right, and enable you to 'fire' with just a flick of the hand! Cat X-2022

**Amazing Value**

**\$21**

## Expand your VIC's memory

### Memory Mother Board

This unit is designed to let you connect up to 6 different expansion cartridges at once! For example, you can connect the 16K, 8K and 3K expansion cartridges together, and so increase the VIC-20's capabilities to its maximum capacity of 32K, PLUS you may connect Interface Cartridges at the same time.

Cat X-2011

**\$199<sup>00</sup>**



### 8K Expansion

With the 8K Memory Expander cartridge, which plugs directly into the VIC 20, you can increase your VIC 20's memory to 13K RAM.

Cat X-2016

**\$79<sup>00</sup>**

### 16K Expansion

By using the 16K Memory Expander cartridge you can increase your VIC 20's memory to an amazing 21K RAM Cat X-2017

**\$129<sup>00</sup>**



### Super Expander

Everything Commodore could pack into one cartridge plus 3K RAM memory expansion, high resolution graphics plotting, colour, paint and sound commands. Graphic, text, multi-colour and music modes, 1024 x 1024 dot screen plotting. All commands may be typed as new BASIC commands or accessed by hitting one of the VIC's special function keys. Includes tutorial instruction book. Excellent for all programming levels. Cat X-2025

**Only**

**\$69<sup>00</sup>**

### RS232 Interface

Provides interface between VIC 20 and RS232 telecommunications modems. Connects to the VIC's user port. Cat X-2018

**Value!**

**\$75<sup>00</sup>**

## Store Your Own Programs

### VIC Datasette



One of the ways to store data on the VIC 20 is on tape. The VIC comes equipped with a tape cassette interface which lets you connect the Commodore tape unit directly into the computer. With this ability you can load, store or retrieve data on standard cassette tape. By a simple command the machine will automatically 'save' a full programme for you.

This method of storing and retrieving data is not only handy and economical, but allows you to buy existing software, to create your own programmes and store them. This makes the VIC 20 suitable for use by all levels of computerists, from novices to experienced programmers. Cat X-2005

**ONLY \$96<sup>00</sup>**

## High capacity storage & retrieval with

### VIC-20 Floppy Disk Drive



Fast, high capacity storage/retrieval of data on standard 5.25" floppy diskettes. Stores up to 170K on each diskette, with read/write compatibility with PET/CBM Computer Systems. Comes complete with own power supply. Cat X-2007

**Value at only**

**\$669<sup>00</sup>**



look at this outstanding  
range of software

NEW  
FOR **83**

**Comes on  
Cartridge**

### Sargon Chess II

One of the best games available on a micro-computer. Seven challenging play levels.  
Cat X-2056

**\$39<sup>95</sup>**



### Pinball

An excellent example of VIC graphics at their best! Three games in one - the pinnies that don't need twenty cent bits.  
Cat X-2057

**\$39<sup>95</sup>**

### Omega Race

The ultimate space game. Multiple levels of difficulty. An Omega fighter manoeuvres to avoid command ships, death ships, vapour ships and photon mines.  
Cat X-2058



**\$39<sup>95</sup>**



### Raid on Fort Knox

You're scurrying through a maze of tunnels below Fort Knox. Ahead is the gold and you have to grab it and escape before the guards find you. Cat X-2059

**\$39<sup>95</sup>**

### Amok

Deadly and unpredictable robots roam the halls of the space station AMOK. If your reflexes are quick and your aim true, you might survive your visit to this rather inhospitable outpost in space. Shoot down the robots and gain points.  
Cat X-2060



**\$39<sup>95</sup>**



### Outworld

Protecting the mining centre of outworld from meteors and aliens is a force field, which has to be supplied with fuel by the supply fighters. The trick is to bring them in to land! Cat X-2067

**\$54<sup>95</sup>**

### Apple Panic

To stop the apple monsters you have to dig holes in the brick floor so they drop in. Once in the hole you have to beat it through. But don't be slow it may crawl out again. Cat X-2074



**\$54<sup>95</sup>**

### Synthesound

Features 12 controls, 2 octave keyboard, 3 voices, 4 1/2 octave range, display of controls and keyboard fingering, and much more.  
Cat X-2078

### Cosmic Cruncher

Quick reactions needed in a maze - crunch or be crunched! Cat X-2050

**\$39<sup>95</sup>**

This pack contains all of the following:  
VIC 21: Casino  
Car Chase: Fast pace road action. VIC 21: Casino  
Style Blackjack. Blue Meanies: Space game.  
Biorhythm: Compare biorhythm compatibility.  
Space Math: Maths improvement. Slither/Super  
Slither: Dexterity game. Cat X-2037

was  
~~\$75.00~~  
**\$66<sup>00</sup>**

### Application Software

#### VICMON Machine Language Monitor

Helps machine code programmers write fast, efficient 6502 assembly language programs. Includes one line assembler/disassembler.  
Cat X-2027

**\$59<sup>00</sup>**

#### Programmable Character Set

Lets the VIC user create up to 64 programmable characters and use them in BASIC programs. The editor takes only half a kilobyte of program space, and works with tape, disk & printer. Cat X-2045

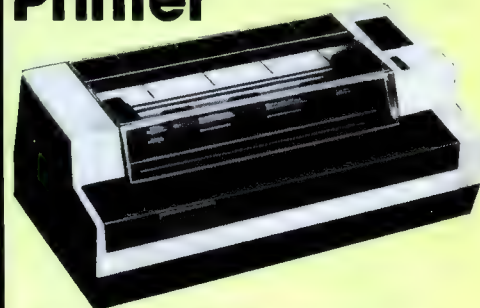
**\$28<sup>00</sup>**

#### Programmers Aid

More than 20 new BASIC commands help new and experienced programmers renumber, trace and edit BASIC programs. Trace any program line-by-line as it executes, pause to edit. Special KEY command lets programmers re-define function keys as BASIC commands, subroutines or new commands. Cat X-2026

**\$59<sup>00</sup>**

## Use Your System To Print Out Text Or High Resolution Graphics With VIC Dot Matrix Printer



Economical Dot Matrix printer makes paper copies of BASIC programs, letters, business data and graphic displays. Connects directly to the VIC-20, prints all characters including letters, numbers and graphics. Prints 80 columns wide, 30 characters per second. Reliable tractor feed mechanism. Accepts sprocketed 8 inch roll or sheet paper. Unique uni-hammer print head for improved reliability.  
Cat X-2009

Value  
at only **\$479**

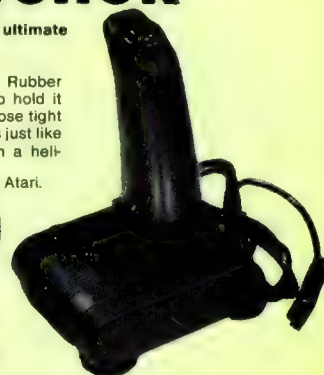
## Quick Shot Joystick

It must be the ultimate joystick . . .

#### Features:

Contour grip, Rubber suction cups to hold it down during those tight movements. It's just like the real one in a helicopter.

To suit VIC and Atari.  
Cat Y-1495



Amazing  
Value  
At Only  
**\$24<sup>95</sup>**

## Super Value Recreation Pack A

### Home Calculation Pack A

A valuable pack of home software containing all of the following:  
Personal finance I & II (home budget etc); VIC typewriter (a home word processor); Expense Calendar (income expenses and appointments). Loan and mortgage calculator (decision making aids) and Home Inventory (your belongings list). Cat X-2044

Value At **\$66<sup>00</sup>**  
was \$75.00

See our range  
of VIC books  
on page  
**107**





# Computers

## BIG SAVINGS ON SORCERER

Potential buyers & Sorcerer owners, now is the time to buy!

We are re-assessing our Stocking Policy on many Sorcerer product lines and this is the time to take advantage of these incredible savings!

Astute buyers will reap the benefit, with many lines reduced to below cost, but be quick as stock is limited!



**SAVE \$400  
PLUS BONUS 32K RAM**

## Sorcerer Mk II

For the serious computer user, it offers truly outstanding performance – plus the ability to run the industry standard CP/M operating system at lower cost than any other computer! The Exidy Sorcerer MkII – the most powerful, flexible and business-like machine in its class!

### Features:

**Based on the Z-80 CPU** – one of the most popular microprocessor chips available

**Memory** – Read only memory (ROM) of 4K byte, Power-on monitor program; connection for 16K ROM PAC program cartridges. Random Access Memory (RAM) – normally 16K **NOW 48K AT NO EXTRA COST!**

**Serial I/O** – RS-232 standard, 300 or 1200 baud rates; connected via 25 pin 'D' connector on rear panel

**Parallel I/O** – 8-bit input and output latched and buffered port with handshaking; connected via 25 pin 'D' connector.

**Expansion** – S-100 Bus Expander connects to the rear edge connector.

**Cassette I/O** – provision for two recorders

**Video I/O** – 30 lines of 64 characters of 1920 characters full screen. Full ASCII 128 characters set (including lower-case letters); 64 defined graphic characters and 64 user definable characters, alternatively all 128 characters may be user defined. 512 (horiz) x 240 (vert) graphic resolution. Automatic scroll, erase to end of screen. Cursor Up, Down, Left Right. All on a professional data processing, typewriter style keyboard.

**Microsoft BASIC** – standard 8K BASIC in plug-in ROM PAC™ (included).

A unique feature of the Sorcerer computer is the plug-in read-only memory module or ROM PAC. ROM PACs look and feel like 8-track cartridges, but they contain programs in memory chips on a circuit board rather than tape to allow you to get maximum use of the Sorcerer's memory space.

Cat X-3002

**SAVE \$400**  
WAS \$1,395

**NOW WITH  
48K RAM  
AND ONLY  
\$995**

## BIG SAVINGS CP/M System Utilities

### CP/M BASIC Sorcerer/Micropolis Dual

Those users who have the older style dual density drives can now use the industry standard CP/M in Exidy format. Comes complete with all utilities as well as disk copying and formatting utilities. Cat X-3711

**SAVE \$250 \$249**

### EXIDY CP/M with BASIC

Well-known & widely used Digital Research CP/M disk operated system (DOS) version 1.42, fully configured for a Sorcerer using Micropolis quad density disk drives, and at least 32K RAM. Has EXBASIC, an extended disk version of Microsoft BASIC 80. Utility includes: assembler, editor, linker, loader, debug & disk conversion routine etc. Includes full documentation. Cat X-3710

**SAVE \$450 \$249**

### Copyfile

Allows you to transfer programs from one disk to another in CP/M when using only one drive. It loads itself onto disk in both formats. Cat X-3712

**SAVE \$455 \$1995**

## Unique Sorcerer feature: Versatile ROMPACS™

### Word Processor Pac

Just plug in, add a printer and you have an extremely powerful Word Processor – at a tiny fraction of usual Word Processor costs. BONUS: as well as the huge saving on the Word Processor ROM PAC, we're throwing in the special Word Processor keytops for the Sorcerer FREE! Cat X-3085

### Development Pac

A powerful dedicated development tool: contains a debug, text editor, linker loader, assembler & I/O routines. Complete with 90 page manual. Cat X-3090

### Eprom Pac

Designed for users who want to use the Sorcerer for a dedicated and can program their own EPROMs to do it. Sockets for up to 16K of EPROMs. Cat X-3095



**SAVE \$80  
+ FREE  
KEYTOPS**

WAS \$279 **\$199**

**SAVE \$40  
\$99**

WAS \$139

**SAVE \$30  
\$49**

WAS \$75



## Unrivalled versatility

# Sorcerer S100 Expansion

**SAVE \$100**



**WAS \$589**

**NOW \$489**

INCLUDING IN-BUILT POWER SUPPLY

The Exidy S-100 expansion unit opens the way to almost unlimited expansion of your Sorcerer system, because more than 100 manufacturers world wide produce plug-in PCB card modules designed for the S-100 bus system—memory cards, floppy disc & hard disk controllers, EPROM programmers, special I/O interfaces & power control cards, colour video graphics, controllers, D-to-A & A-to-D converters, music & speech synthesis cards.

### SPECIFICATIONS:

- Designed to allow up to 6 plug-in cards
- Contains full logic circuitry required to interface between Sorcerer's data address & control signal lines & the S-100 bus system
- Connects directly to the Sorcerer's 50-way expansion socket via a ribbon cable and matching connector (supplied)
- Card sockets are fitted to all 6 slots on the motherboard
- Inbuilt expansion power supply delivers 8V @ 8A, +16V @ 2A & -16V @ 2A
- All S-100 lines are fully buffered
- Buffer drive capacity is 40mA
- Separate 2.000MHz crystal clock provided for S-100 cards which cannot use the 01 & 02 clock signals derived for Sorcerer's 2.106MHz clock
- Provision for mounting up to six 25-pin 'D' connectors for additional I/O ports etc.

Cat X-3010

**LIMITED STOCK AT THIS PRICE!**

**FAMOUS NAME**

## Micropolis Disk Drives

**SPECIAL PRICES ON DEMO MODELS**



**SAVE UP TO \$555**

You can have from one to four drives, giving up to 1260 K bytes (yes – more than a Megabyte) of storage at the incredibly low price of only 0.2 cents per byte!

The Micropolis 1043/1023 system represents third generation, state-of-the-art mini-floppy disc technology. It comes from the Micropolis Corporation, the company which has done most to develop the 134mm mini-floppy disc as a reliable high density storage medium and a worthy successor to the older 205mm disc. At the heart of the 1043/1023 system is 'quad density' technology, developed by Micropolis. This packs no less than 77 tracks each of 16 sectors onto each disc, instead of the usual 35 or 40 tracks of only 10 sectors. The result is an incredible 315,000 bytes of usual storage on each disc – from FOUR to SEVEN TIMES the capacity available on other systems.

With the Micropolis 1043/1023 system you have the highest possible storage capacity for outstanding value for money.

**Micropolis 1043/mod 2 Drive with controller Cat X-3205 WAS \$1,350 NOW \$795**

**Micropolis 1023/mod 2 add-on Drive Cat X-3208 WAS \$750 NOW \$620**

CAN ALSO BE USED WITH THE SYSTEM 80 AND OTHER COMPUTERS

**SPECIFICATIONS:** 240V 50Hz input power requirements; 315K bytes, formatted, capacity per drive, transfer rate of 250K bits per second; Access time – track-to-track is 30ms; Stepper motor with lead screw drive; Rotational speed of 300rpm; Recording mode is MFM; Track density of 100 tracks per inch (TPI); One per disc surfaces.

## Disk Utilities for Micropolis EDOS

A complete DOS that is fully compatible with the Micropolis Model I & II disk drives. It allows you to CLOAD into memory, SAVE onto disk and still run with ROM PAC BASIC. Cat X-3602

**SAVE \$8 WAS \$17.95**

**NOW \$9.95**

## DSK CITO P/PRINT

A disk driver and proportional print driver for the Sorcerer Word Processor. It gives you the ability to save and load work processor files onto disk, to perform proportional and many more. Hard sector version for Micropolis drives. Cat X-3725

**SAVE \$56 WAS \$155**

**NOW \$99**

## 'Daisy Chain' Disk Cable

Enables you to run up to 4 disk drives in a system. Ideal for applications requiring a system diskette in 1 drive and data diskettes in the other three. Cat X-3232

value

**\$49.95**

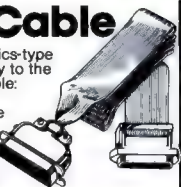


## Other Sorcerer Connecting Cables

### Printer Cable

Connect any Centronics-type parallel printer directly to the Sorcerer with this cable: already fitted with standard plugs. You're ready to go! Cat X-3112

**only \$51**



### Dual Cassette Cable

Connect two cassette recorders to your Sorcerer with this cable – each with motor control. Cat X-3110

**value \$36.50**



save around \$300 on the Disk Drive that doesn't need an expansion unit

## Quad density Floppy Disk Sub System

**SPECIAL PRICES ON DEMO MODELS**



**SAVE \$295**

**WAS \$1290**

**NOW \$995**

Now there's a disk drive for the Sorcerer that doesn't need an S-100 expansion interface! And it is designed to plug straight into the back of the computer. What's more it's loaded with extra features. Look at these for example –

- Soft sector Quad Density (308K bytes/disk) – formatted
- Has provision for one or two add-on Disk Drives!
- Comes complete with CP/M – industry standard DOS (disk operating system) – USUALLY AN EXTRA \$250 WORTH!

And it comes with comprehensive documentation and user manual!

When you consider the price, what other drives cost: because with all other drives, you have to buy an expansion interface costing over \$500, and also buy the C/PM separately as well. With this floppy disk subsystem, the expansion interface isn't required – and you get all the software 'thrown-in'! Cat X-3220

## 'Daisy Chain' Cable for Exidy FDS

**\$49.95**

This cable enables you to connect up to 4 X-3208 add-on drives to your Floppy Disk Subsystem. Cat X-3222



**SAVE \$6**

**NOW WAY UNDER COST!**

## Sorcerer Software Business Software on Disk

### General Ledger

Performs the essential duties of dual entry book-keeping and the matching of revenues and expenses. Up to 884 accounts can be handled. Requires a 32K Sorcerer with dual quad-density Micropolis disk drives, and also a printer. Menu driven, comes with full source listing. Cat X-3700

### Accounts Receivable

A package of programs which carry out the Accounts receivable functions for small business. Links with the General Ledger package via the JOURNAL file. Requires similar hardware to General Ledger. Cat X-3704

### Accounts Payable

Similar to the accounts receivable package, but performs the accounts payable function. Also linked to the general ledger via the JOURNAL file; requires same hardware as above. Cat X-3702

## Educational Software on Cassette

**INCREDIBLE SAVINGS!**

### Music System II

Allows you to play a four part harmony on your Sorcerer! Cat X-3603

### Chess 'Bruce'

Play chess just like the grand masters. Cat X-3613

### Supercalc

Your Sorcerer becomes a 26 memory super powerful calculator. Cat X-3609

### Graphix

Gives you real computer power on your graphics. Cat X-3615

### Touch type

Learn to touch type in super fast time. Cat X-3606

### Slaps

A pseudo machine language programme which teaches assembly language. Cat X-3610

### BASIC Tutor

Everything you've ever wanted to know but were afraid to ask. Cat X-3607

### Machine Code

Learn the basics of machine language programming. Cat X-3608

## Games on Cassette

**ALL GAMES WAY BELOW COST!**

### Grotnik Wars

Destroy the Grotniks – an exciting 3D game. Cat X-3614

### Rubix

You guessed it – the cube now comes to the computer! Cat X-3611

### Galaxians

The arcade game on your Sorcerer – a beautiful version! Cat X-3616

### Super Asteroids

Very fast action, great for the reflexes. Cat X-3634

### Invaders

The game that became a cult. Almost addictive. Cat X-3617

### Air Traffic Control

Land em – don't prang em! Can you do it? Cat X-3601

### Chomp

Another great arcade game adapted for the Sorcerer. Cat X-3612

**MANY OTHER GAMES AVAILABLE AT THIS LOW PRICE**

## Utilities on Cassette

### Zap 80

'Secret Code Disassembler' – it will display all those unknown instructions. Zilog never talk about. Cat X-3625

### System 3

Guaranteed to cut your programming and debugging time in half. System 3 is a powerful editor as well. Cat X-3630

### Forth

Try Forth, a new language for your Sorcerer using postfix notation (RPN). 32K RAM, up to 15 screens of about 1,000 bytes each can be held. Cat X-3629

### Dumb Terminal vs.3

A machine language program for communication with a larger computer or other terminals via the RS-232C serial port. Cat X-3637

### Ezy-file

A general purpose data base system of up to 500 records which may consist of 1 to 9 fields. Cat X-3605

**SAVE UP TO \$27**

**NOW ALL \$2.95 ea**

**SAVE UP TO \$27**

**NOW ALL \$9.95 ea**



# New Voice Activated Two Tape

## Phone Products

latest  
technology  
new low  
price!



Stop Press....  
New Telecom regulations allow  
you to plug these phone products  
into existing Telecom sockets.

Both Models  
Available  
Late 83

Cat F-6130

Telecom Permit No. C83/16/2

## Dick Smith Single Tape Answering Machine

AVAILABLE  
LATER THIS YEAR

Unbelievable but true - the most advanced economy single tape telephone answering machine is also the simplest to use. In this fantastic machine, solid state microprocessor circuitry is actually activated by the push of one button. Features the revolutionary VOX (voice activated) remote control so there is no need to purchase costly remote beepers. Voice activated means that there will be more messages per tape and no wasted space.

### The Machine Features:

- Microprocessor controlled for reliability.
- VOX (voice activated) message time - up to 80 seconds each.
- Once only announcement record - no need to record up to 30 times as on other single tape machines.
- Monitor mode - hear who's calling.
- VOX (voice activated) remote control - no need to carry a remote control unit or beeper to retrieve your message from anywhere in the world.
- Incredibly simple single push button operation.
- Tape full signal.
- Last message received signal.
- Acknowledges all commands - foolproof operation.
- 'Fail Safe' - signals if you forget to insert cassette.
- Built in condensor mic for recording announcement.
- Book size - fits perfectly under your telephone.
- Uses standard cassettes.

Amazing  
Value only

**\$199<sup>00</sup>**

## 1000's Sold of our Popular Single Tape Answering Machine

With more than 13,000 units sold, our current single tape model deserves to be called 'Australia's most popular telephone answering machine'. Until the new model arrives, we will continue to supply this superb machine.

Cat Y-2173

ONLY

LIMITED STOCKS  
STILL AVAILABLE



**\$199<sup>00</sup>**

## NEW FOR 83 Enjoy the Dick Smith

Don't be tied to your desk by a metre of cord!

Have the convenience and security of a telephone at your finger tips anywhere in your office, factory, home, garden - even use it by the pool. Always be in touch with the Dick Smith Cordless Phone, incorporating state-of-the-art technology. It looks, feels and operates just like a



regular telephone, but there is no cord! Base unit connects to phone outlet. Lightweight portable hand-set operates with built-in NiCad batteries which recharge automatically. It couldn't be easier to use! A must for the elderly or infirmed.



NEW FOR 83

## Amazing DICK SMITH

Today's businessman (or woman) on the move needs to keep in touch - with clients, with staff, even with their husbands/wives/etc (fill in your own details!)

And, as much as we cannot understand it, many people simply hate to leave messages on answering machines!

Is there no answer?

At last, there is! A brand new concept in telephone service: the Dick Smith Call Diverter. It's a world first (the first unit of its kind on the market) and it's exclusive to Dick Smith Electronics.

Whenever you're away from the office, home, etc, you can program your call diverter to tell callers where and when you can be reached - or even to ring back later! And it's all done electronically through an amazing microprocessor-controlled speech synthesiser circuit.

No tapes, no records: just pure (and understandable!) synthesised speech.

No more hang-ups on conventional phone answering machines. And no more irate callers who couldn't get in touch with you!



# Remote Controlled Answering Machine

Now - a brand new two tape telephone answering machine featuring the absolute state-of-the-art in design, convenience and features. Two tape machines have big advantages over single tapes - you don't need to record your message over and over again (like many other machines). And of course, you can change the outgoing message very easily. But this one has incredible advantages over other two tape machines - including machines costing two, three and more times as much!

Check The Features - No Other Unit Compares.....

Even At 2 Or 3 Times The Price!

- Microprocessor controlled for reliability
- Max. 3 minute announcement
- Monitor mode - hear who's calling
- 2-way conversation recording
- Power failure security - resumes working when power returns
- Fail Safe - tells you if something is wrong
- Record over existing messages or auto electronic erase for security
- VOX (voice activated) announcement change - change your outgoing announcement as often as necessary remotely.
- Easily changeable coding for remote operation for security
- Answer only switch
- Command confirmation - no guessing if unit has received instructions
- Space Saver - minimum space between messages.
- Uses standard micro-cassettes

Amazing Value **\$299<sup>00</sup>**

Advanced Model - Same Low Price!

...and now no costly remote control beeper necessary!

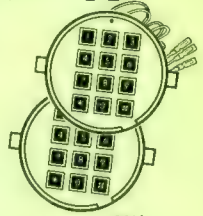
The latest space-age techniques have eliminated the need for you to carry any kind of bulky, expensive, battery-operated remote control beeper. Using pre-determined vocal commands, which YOU code into the machine, it is incredibly easy for you (and only you) to retrieve your messages whilst away from your phone, interstate or even overseas. Alter the code as you please....Your absolute security is assured. All this at not one cent additional cost! What convenience! What security! What a saving!

Stocks due in few months. Limited stocks of our Y-2180 2-tape machine still available - save \$\$\$\$ over comparable machines.

## Amazing Price / Technology Breakthrough! Push Button Dialler

Converts rotary dial phones to push button type. Ideal for hobby use or private phone systems. Memory re-dial allows a previously engaged number to be re-called at the press of one button. Up to 16 digits can be retained in the memory. Easy to install with instructions supplied. Cat Y-1175

was \$39<sup>50</sup> now **\$19<sup>95</sup>**



## 10 Memory Push Button Dialler

We've sold thousands of the popular phone diallers (above) and this one is equally as popular. Not one memory but TEN - yes 10 phone numbers can be stored in this unit. Great for experimenters etc. Look at our price! Cat Y-1183

was \$59<sup>95</sup> now **\$39<sup>95</sup>**

# freedom of the Cordless Phone

Just look at these features :

- Operates just like a standard telephone
- Up to 100 metres range
- Handset has rechargeable NiCad batteries with charger in base unit.
- Push button dialling - even for STD and ISD numbers.
- Special 'lock' feature prevents other cordless phone users from using your number.
- Handy paging facility.
- Intercom facility if unit is wired to privately owned phone system.
- Low battery indicator.
- Hi/Low volume switch.

Brief Specifications:

**Handset:** Transmit frequency 40.025 to 40.225MHz and receiver 1.725 to 1.78MHz. Power drain 12mA for standby, 60mA when in use. Power requirements Rechargeable NiCad batteries. Size 6.2cm(w) x 23.5cm(h) x 6.2cm(d). Weight 350 grams.

**Base Unit:** Transmit frequency 1.725 to 1.785MHz and receiver 40.025 to 40.225MHz. Power drain less than 10 W. Power requirements 240V AC. Size 25.5cm(d) x 17.5(w) x 7cm(h). Weight 1.1Kg.

Amazing Value

**\$199<sup>00</sup>**

Don't Pay \$400 or More!

Cat Y-1190



Telecom Permit No. C82/35/113  
D.O.C. Approval No. RFM E002/13

# Technological Breakthrough CALL DIVERTER



Here's how it works:

When you leave your office, home, etc you simply press a few buttons to program in one of three messages:

- (1) "This number is .... (your number). I am at .... (where you'll be) after ..... AM (or PM). Thanks".
- (2) "This number is ..... Please phone tomorrow after ..... AM (or PM). Thanks".
- (3) "This number is ..... Please phone later, thanks".

It's delightfully easy to program - it takes just a few seconds!

AMAZING VALUE!

**\$129<sup>50</sup>**



Cat Y-1173

Look at these amazing features:

- ★ Completely microprocessor controlled: no cassettes or other moving parts to wear out ... unbelievably reliable.
- ★ Functions as a normal push-button phone
- ★ Requires only one phone line
- ★ LED mode indicator to tell you what's happening.
- ★ 'Time saver' facility - program your next call into the microprocessor's memory while still on the current call! Just press one button to dial your next number!
- ★ And it's a compact, attractive unit that won't be out of place in any office or home decor.

Sound pretty exciting? It is! Check it out soon at your nearest Dick Smith store.



# Phone Products

NEW FOR 83

Stylish  
Economy  
push  
button  
dialling

**The  
Dick  
Smith**

## Pal Phone

Remember when cheap replacement telephones sounded 'Tinny' and weighed a ton? Don't despair - Pal Phone is here! Elegantly styled, this phone is full of features you'd expect to pay lots more for, such as:

- Push-button dialling.
- One button last number redial.
- Mute button for privacy.
- Ringer ON/OFF switch.
- High quality sound.
- Light weight - comfortable to hold.
- Use on desk or wall mount (with optional phone holder Cat Y-1185)

Telecom Permitted

Why pay more  
for less?

Value  
**\$29<sup>95</sup>**

**DON'T PAY  
OVER \$60.00**

Value  
at **\$69<sup>00</sup>** SAVE  
\$30.00

It looks like something out of the 25th Century!! In actual fact it's an amazing new computer telephone digital dialler representing the latest in micro-processor technology - AND IT'S AVAILABLE TODAY! It can store 28 seventeen digit numbers - so you can ring any one of 28 people at the touch of one button, or you can call other numbers by using the push button dial. Each number is displayed for you as you dial.

Cat Y-1180

IDEAL FOR NEXT 100 -  
PRICE CAN BE  
PROGRAMMED IN

Telecom Permit No. C82/4/7

Stop press  
New Telecom regulations allow  
you to plug these phone products  
into existing Telecom sockets.

NEW FOR 83

Twelve  
memory  
push  
button  
dialling  
at low  
cost

**The  
Dick  
Smith**

## Automatic Phone

It sounds almost too good to be true, but here's the advanced version of our 'Pal' Phone which will memorize your 12 most frequently used phone numbers. Local calls, STD, even ISD, the incredible Automatic Phone remembers them all. Convenient and time saving. And, at this low price you'll be overwhelmed by the range of extra features:

- Memorizes eight 7 digit phone numbers.
- Also memorizes an additional four 12 digit phone numbers for STD (or local calls).
- Can be used for ISD automatic dialling by using two spaces.
- Pause for PABX as well!
- One button last number re-dial.
- Mute button for privacy.
- Ringer ON/OFF switch.
- Timer for elapsed time or reminding phone call.
- Plays music.
- Key tone indicates valid key.
- High quality sound.
- Lightweight - comfortable to hold.
- Use on desk or wall mount (with optional phone holder Cat Y-1185)

Telecom Permit No. C82/33/129

Cat Y-1184

And  
All For

**\$49<sup>95</sup>**

## Phone Holder

If you're running short of desktop space - wall mount your Automatic Phone or Pal Phone with this specially designed holder. Disconnects line when phone is inserted forwards. Keeps line open when phone is inserted in reverse manner. Screw on or glue on just about anywhere. This sturdy phone holder will make your new handset phone even more convenient. Cat Y-1185

ONLY **\$4<sup>95</sup>**

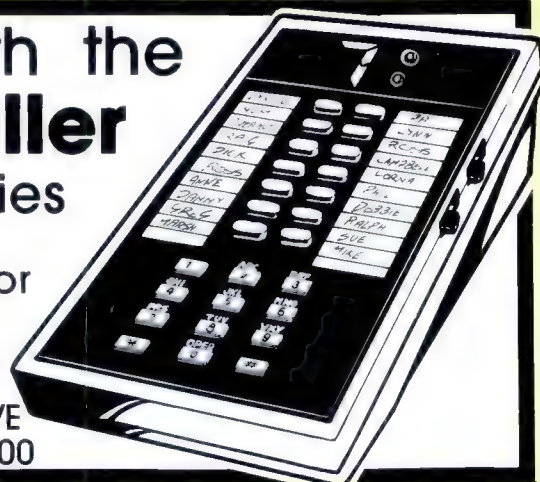


## Cut down dialling time with the Dick Smith Digital Dialler

28 Memories  
Latest  
microprocessor  
technology

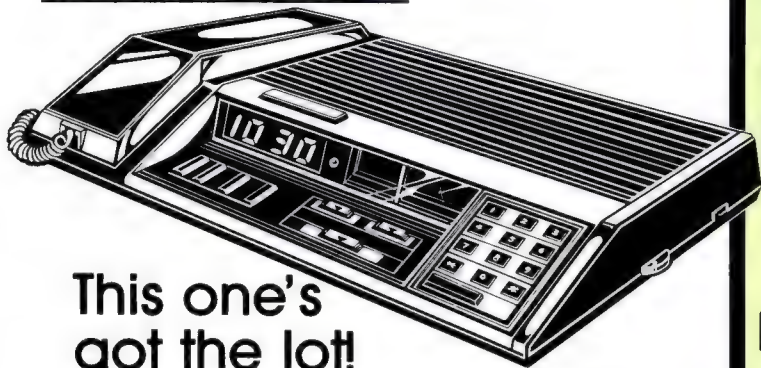
Was \$99.00

Value  
at **\$69<sup>00</sup>** SAVE  
\$30.00





NEW  
FOR **83**



This one's  
got the lot!

## The Dick Smith AM - FM Radio/ Clock/Telephone

Only have the room for one? Now you can have it all with this superb clock/radio and telephone in the one unit! Picture this beauty on your desk or bedside table. It must be the ultimate in convenience.

Look at these features:

- Push button telephone with last number re-dial, mute, adjustable ring, LED in-use indicator.
- Deluxe AM/FM radio with 75mm dynamic speaker.
- Digital alarm clock with snooze alarm, sleep time control - wake to music of buzzer, green LED display.
- Battery back-up for clock and alarm.
- Auto muting of radio when telephone rings or is used.

You'd expect to pay a fortune for this one, but look at Dick's special price.

Telecom Permitted

A Masterpiece of  
Technology  
For Only **\$79<sup>00</sup>**

Cat F-5100

## Make listening easy Phone Amplifier

Are you the busy secretary or housewife who is forever sitting with a phone to your ear waiting for the person on the other end of the line to come back to the phone? Well now you can relax because this unit will let you know when there is a person on the other end. Easy to attach via sucker. Also ideal for conferences or for when those overseas relatives call - now everyone can hear your caller!  
Ca Y-1174



OVER 8,000  
SOLD  
**ONLY \$12<sup>50</sup>**

Not Telecom Permitted

Dick bulk buys and you save

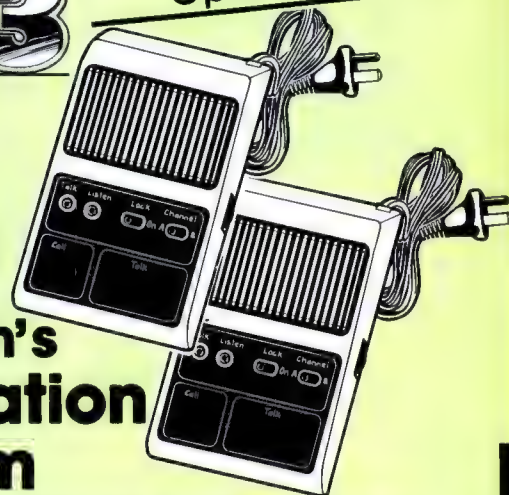
## Intercoms

NEW  
FOR **83**

Featherlight Touch  
Operation

NO  
WIRING  
REQUIRED!

## Dick Smith's FM 2 Station Intercom



Handsome, yet unobtrusive, these units will perform as well as units costing much more and the great advantage is you can get them from Dick Smith. By simply plugging these units into the AC mains socket you are taking advantage of a wiring system that already exists! No need to rewire the house, office or factory - what could be easier?

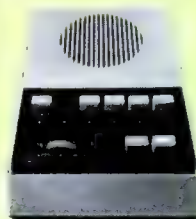
- No batteries required.
- No wiring required.
- Has call tone.
- On - off/volume control.
- Two channels for 'master/slave' operation or two independent conversations with additional units.
- Lock button for hands free operation.
- Power On/Off indicator LED.
- Ideal for home, office or factory.
- Size approximately 165(W) x 135(D) x 55(H)mm
- Complete with mains plug

Cat F-1012

ONLY  
**\$69<sup>95</sup>**  
Pair!

## Famous Myphone Quality 2 to 5 station intercom

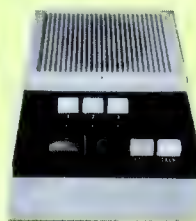
### TC-5M Master



Used in conjunction with up to four other TC-5M units giving a maximum of five 'all master' units. Requires three more wires than the total number of master units (i.e. a three station system would require six wires between each unit). Distances between units can be up to 300 metres. Also incorporates a privacy switch and the called unit can answer 'hands free'. The TC-5M system may be intermixed with TC-PR remote units so long as no more than four are connected to any one master. Cat F-1240

- High quality French Isostat switches.
- "Hands Free" reply from any station.
- Master to master or master to remote operation.
- Wall or desk mounting.
- Inbuilt batteries or external 6V DC operation.
- Inexpensive
- Up to 300 metre range between units.

### TC-3 Master



### TC-PR Remote Unit



This unit can be used in conjunction with master units TC-3 and TC-5M and incorporates a privacy switch to prevent unauthorised listening by the master. Cat F-1201

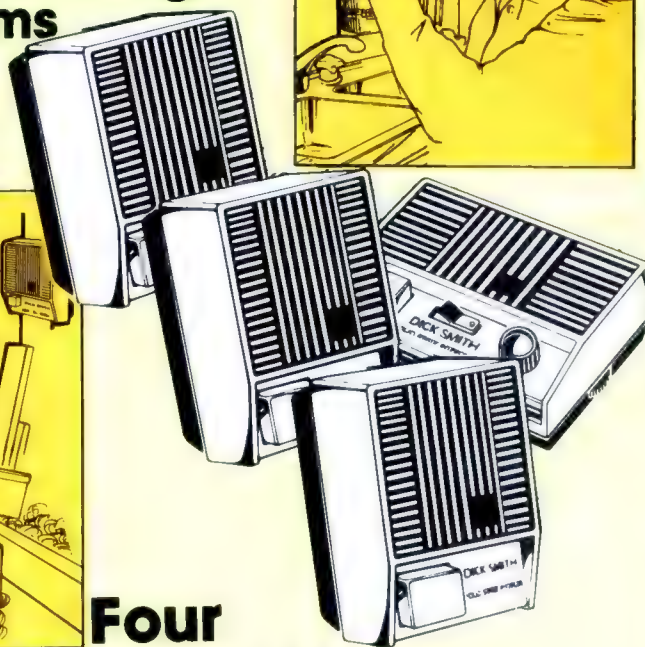
This unit is used in conjunction with TC-PR remote units to make a system where the master and any remote may communicate but where remotes can not communicate with each other. Cat F-1230

<b>Value!</b> <b>\$62<sup>50</sup></b>	<b>Only</b> <b>\$39<sup>50</sup></b>	<b>Only</b> <b>\$19<sup>95</sup></b>
5 up.... \$55.00	5 up.... \$36.00	10 up... \$17.95



# Intercoms

Quality with economy, that's the **DICK SMITH Range of Intercoms**



## Four Station Intercom System

Do you have problems communicating from one end of your house to another? Or your office, factory, etc? Now is the time to put in a quality Dick Smith intercom unit — and save your voice! This intercom system is easy to install, easy to use — and easy on the pocket! This four station intercom system is fully transistorised and comprises a master and three slaves. Each slave station has 21 metres of wire plus they can be wall mounted or placed on a bench or desk etc. The system is battery powered and even when the master is turned off the slaves can still call back to the master simply by pressing the call button. There is no need to press the button on a slave when talking to the master — they are 'hands free'. This is the way to communicate between bedroom and kitchen, garage to kitchen, etc. Cat. F-1040

Complete for only  
**\$38<sup>50</sup>**

## 2 Station System

This is a highly efficient station intercom that is fully transistorised and can be used over any distance up to 160 metres. Master unit has volume control and is supplied complete with slave, battery and 16 meters of connecting cable. Either station can call even if the system is turned off. Can be used in any situation, even as a baby minder between bedroom and lounge.

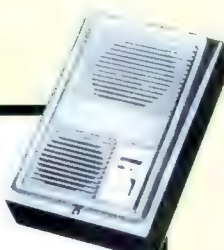
Cat. F-1020

ONLY **\$16<sup>50</sup>** PAIR

## Who's that at your door?

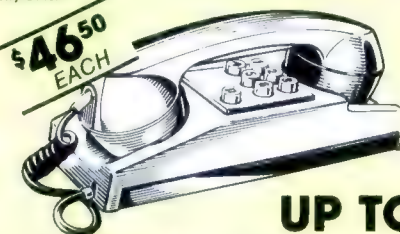
This doorphone can be used in conjunction with the Myphone master units TC-3 and TC-5M (Cat. F-1230 & Cat. F-1240). It enables you to screen callers to your home before opening the front door to them. Plus you can identify the call tone as being from the doorphone as it has a different tone to the TC-PR slave units. Cat. F-1200

Great Value  
**\$17<sup>95</sup>**



## Top name MYPHONE Telephone Style Intercom

These 'phone' style intercoms provide a fast and efficient means of communication within your home, office, factory — even small hospitals, motels, etc can find them useful! The system is easy to operate and separate conversations can be carried out simultaneously with privacy. You can select the number of intercoms and connect them up! If you need less than 7 stations, use the 6 line unit. More than 7 and up to 13 stations, use the 12 line system. All stations are 'master' types — that is, any station can call any other.



**\$46<sup>50</sup>** EACH

## UP TO 7 Station System

For smaller installations: up to 3 simultaneous conversations with up to 6 stations in the group.

UP TO 6 LINE SYSTEM

5 or more ..... **\$42.00**

Cat. F-1310



**\$61<sup>00</sup>** EACH

## UP TO 12 Station System

Up to 6 simultaneous conversations are possible with this system, with any unit capable of calling any of 12 others.

UP TO 12 LINE SYSTEM

5 or more ..... **\$55.00**

Cat. F-1320

**SYSTEM REQUIREMENTS:** Cable — two wire plus number of intercoms in system (i.e. an eight station system needs 10 conductor cable).

**Power** — Both units 12V DC, 6 line 350mA; 12 line 1A. A battery supply is possible, but we recommend our M-9526 or M-9530 supplies (see power supply pages).

To obtain absolute privacy, the F-1321 terminal board below must be used.

## Intercom Terminal Board

Enables you to wire your 6 or 12 line system with minimum of fuss. Specially imported to suit the above intercom systems. Can be mounted virtually anywhere convenient and even has terminations for power supply connected.

Cat. F-1321

ONLY **\$61**

**DON'T SPEND BIG MONEY ON A PABX SYSTEM — THESE UNITS DO NOT REQUIRE A SWITCH BOARD!**



Dick Smith mail orders to the World



# Alarm Systems

## Infra-red photo-electric relay

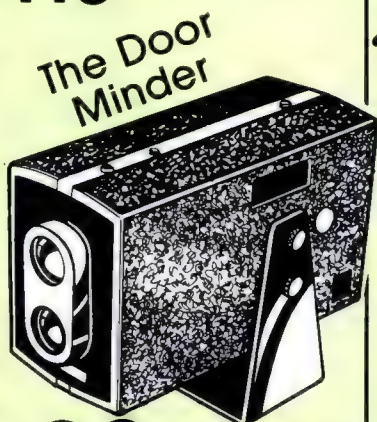
This exciting addition to the Dick Smith home or office protection systems allows you the opportunity of installing a professional type infrared beam unit at a fantastically low price!

The projector and receiver are both contained in the same housing and after installing the unit by its adjustable bracket across hallways, doors etc, you simply remove the protection from the adhesive back on the reflector plate and position it opposite the transmit/receive unit. The unit incorporates a sensitivity adjustment to suit different requirements and a three position selector for; INTERMITTENT - outputs signal for 5 seconds, ideal for notifying you of a visitor; INSTANT - outputs signal only whilst beam is 'cut', ideal for use as a counter; LOCK - outputs signal until you set to instant position, ideal for use with burglar alarm. The unit works on 240V AC and the 12V DC output @ 1 amp can be used to drive a counter, lamp, buzzer, siren, etc. As the beam is invisible this unit can be used for many purposes i.e. guest notifier during the day and at night switched over to an alarm function.

### SPECIFICATIONS:

- Power source 240V AC ● Output power 12V DC @ 1 amp maximum ● Reaction time 5 seconds at intermittent position ● Effective distance 0.8 to 15 metres
- Detection object 2.45cm x 2.45cm minimum (at the centre of setup distance)
- Reflector angle allowance  $\pm 10^\circ$  max. ● Stray irradiation less than 1000 Lx
- Working temperature -10 to +40°C ● Dimensions (mm) 90(w) x 143(h) x 190(d)
- Net weight 1.55kg

Cat. L-5050



**\$99**



Requires 8 'C' cells  
Cat. S-3002 @ 30c ea.

**ONLY \$99**

## DICK SMITH Ultrasonic Alarms

This versatile ultrasonic alarm system is an easy to install motion activated burglar alarm system designed to detect the presence of an intruder in your home, office or business etc. Operating on the principle similar to radar, the unit puts out an inaudible, invisible harmless beam that detects any movement within its path. It's ideally suited to surveillance of hallways, corridors, stairs, doorways areas storing valuable items etc, where normal alarm systems are not practical.

### FEATURES

- Adjustable coverage area sensitivity control ● Covers distances to 5-6 metres ● Covers areas up to 27 sq. metres ● Normal N.C. and N.O. sensor wiring provision ● Auto turn-off and reset ● Provision for external horn (optional extra [Cat. C-2705]) ● Provision for external horn relay switching (optional) ● Battery and/or mains operation via optional power pack ● Failsafe power operation.

Cat. L-5108

NEW FOR 83

## Ultrasonic Sensor

A superb new addition to our range. This ultrasonic motion detector is ideal for adding onto an existing system, or can be used in conjunction with a siren/bell etc. as an alarm in its own right. Has both NC & NO contacts, operates from external 12V DC so could also be used in a motor vehicle.

Cat. L-5109

**ONLY \$65**

## Low Cost Surveillance System

There are numerous cameras on the market today that can be used in surveillance systems, or with video cassette recorder etc. They are generally colour cameras which cost anything from \$1,000 for a very simple unit to \$20,000 or more for the more complex units. This amazing CCTV camera will be ideal for nearly 99% of all general use and as such represents outstanding value for money - read on and just see how this unit could be of use to YOU...

- ★ Monitor your swimming pool - keep an eye on the kids from the comfort of your living room.
- ★ Security monitoring in shops, banks, libraries, factories, around the home, outside the home, etc.
- ★ Reading aid for the visually handicapped.
- ★ Amateur TV enthusiasts
- ★ Schools and colleges for teaching drama, TV acting etc.
- ★ With video cassette recorders - just imagine, you can record the progress of your kids and even yourself as you grow older - straight on to video storage cassettes.

**Total System for only \$448<sup>50</sup>**

CAMERA: \$299

Cat. Y-1195

MONITOR: \$149.50

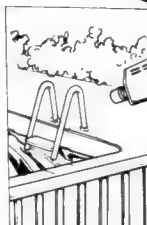
Cat. X-1196

### Features

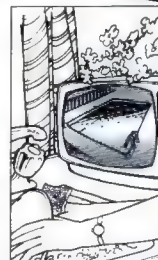
- Uses modern solid state circuitry ● 2/3 inch SEPARATE MESH Vidicon tube for high quality pictures ● 7MHz video bandwidth ● 550 lines horizontal resolution ● SWITCHABLE VIDEO/RF output (Australian Channel 1) means it will work directly into a TV set or into a monitor ● Wide range ALC (Automatic Light Control): 10,000:1 range - means it can be used in a wide variety of lighting conditions, from very bright to very dull ● Low noise picture: 40dB S/N ratio ● Comes with a high quality f/1.8 lens of 16mm focal length in a standard 'C' mount

Rear focussing adjustment of the Vidicon allows you to focus to within 10mm of the lens face - that's fantastic macro ● Plug-in PCB modules for ease of servicing, if this is ever needed!

Cat Y-1195



This camera may be used with a normal TV to give a low cost surveillance system. (It may also be used with the monitor Cat. X-1196 @



\$149.50 to give a better picture). Why not protect your property by 'seeing' for an economical price!

Save a fortune by installing your own system. Find out how with Dick Smith's 'How to install your own Burglar Alarm'

Considering an alarm system but were put off by the cost of a professional installation or thought you were not capable of doing the job yourself? By reading this booklet you will see how easy an installation is. Tells you all the basic theory about Alarm System, their components and the tools you'll need to install them. By installing an alarm system yourself, you could save hundreds of dollars - and have the satisfaction of greater security for your loved ones and property.

Cat. B-6000

**\$1.95**

## Ultrasonic Transducers

This highly sensitive ultrasonic transmitter (L-7050) and the equally as sensitive receiver (L-7052) have been designed to transmit and receive ultrasonic sound through the air in the form of continuous and constant waves. Applications include - burglar alarms proximity switches, liquid level meters, TV remote control plus many more. Can be used in the ultrasonic transmit/receive article in E.A. February 1974.

Transmitter ..... Cat. L-7050

**\$4.99**

Receiver ..... Cat. L-7052

**\$4.99**

## Alarm Battery

Heavy duty battery for use with any alarm requiring 12V DC. Under normal conditions of usage these batteries will last approximately 12 months. See also battery page.

Cat. S-3242

**\$12<sup>35</sup>**

## Connecting Wire

A suitable wire for the interconnecting of alarm systems and peripherals is the Mini 2 Core 'Fig 8'.

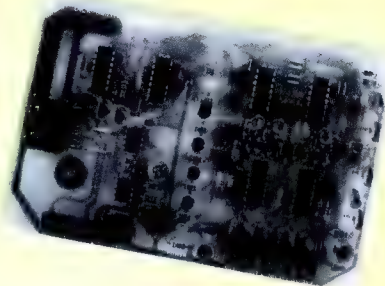
Cat. W-2010

**18¢/M**



# Alarm Systems

NEW  
FOR



Top Protection  
that will save you  
a fortune!

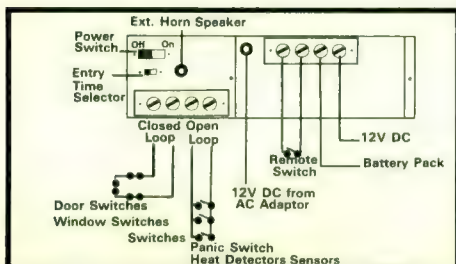
## 'Bookshelf' Alarm Control Module

This is the alarm system control for the home, flat, etc. — because it doesn't look like an alarm! So anyone entering your property could easily be fooled into thinking this was a small speaker — until they were caught! This module has another big advantage too — it's fully self contained. While there is provision for an external horn speaker, it has its own speaker built in, hidden behind the 'speaker grille' front panel.

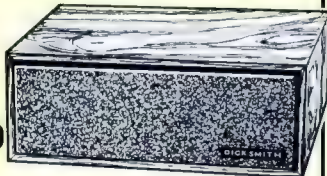
### FEATURES:

- Unit switches off siren after five minutes to comply with Australian noise pollution laws. — Auto reset: if circuit has been restored, it reads itself for another alarm. — AC/DC operation: optional AC adaptor can be fitted to use mains; unit automatically switches back to battery if mains is interrupted. ● Built-in test LED for checking that the system is working before you leave. ● Built-in remote switch terminals, allows for the installation of a switch that controls the alarm module from wherever you wish: great for the elderly, infirm, or nervous people! Cat L-5102

Requires 8 'C' cells. Cat S-3002 @ 30c ea.



VALUE  
AT  
\$59<sup>50</sup>



## Four Sector Control Module

This composite alarm control unit is virtually identical in operation and circuitry to one of the advanced alarm control units you pay a commercial alarm company many hundreds of dollars to install. It features four sector operation — so you can protect four different areas on different circuits. As a fail safe feature, if one sector is successfully broken into without tripping the alarm sensor, the intruder still has to beat 3 other sector defences, a most unlikely feat. If your intruder is a 'pro' and tries to 'wire out' the system, a complex input circuit prevents his success. Auto reset for continuous protection. This is probably one of the most versatile alarm modules ever produced.

**FEATURES:** ● Instant or delayed inputs. ● All inputs suitable for N.O. or N.C. sensors. ● 'Wire out proof' sensing system. ● LED sector and control state indicators. ● Adjustable entry, exit and alarm periods. ● Built-in siren will drive two speakers. ● Output for driving siren or bell up to 1 amp.

## Solid State Buzzer

- ★ A TRUE ELECTRONIC BUZZER
- ★ SILICON TRANSISTOR AND DIODE
- REVERSE POLARITY PROTECTION

### Features:

- ★ Compact — 32mm x 14.5mm
- ★ Rich, clear tone — 450Hz
- ★ Wide operating voltage range 4 — 15V DC
- ★ Low operating current — 15mA @ 9V
- ★ High output level 70dB min @ 1M

Cat L-7009



ONLY  
\$1<sup>99</sup>

## Audio Alarm

This is an incredibly loud audio alarm that works on a nominal 9V DC, but can be used with voltages varying between 5 and 29V DC. It can be used in all manner of applications including: computer alarms, fire signalling equipment, telephone signalling etc. etc. Cat L-7024



ONLY \$5<sup>50</sup>

## Deterrent Sticker



This printed sticker is ideal for your car, house, factory etc, to show you have an alarm system installed. A would be intruder seeing this 'sticker' is not likely to attempt a break-in. Whether your property has an alarm system or not, this bright, easily read sticker will really have a deterrent affect. Cat L-5310

ONLY  
\$1<sup>00</sup>

### SPECIFICATIONS:

- Supply Voltage: 9 — 15V DC (12V nom.). ● Standby Current: 12mA — 15mA @ 12V input. ● Max. Supply Current: 1 amp. ● Entry Time: 30 sec. — 1.5 min. adjustable. ● Exit Time: 45 sec. — 3.5 min adjustable. ● Alarm Time: 30 sec. — 6 min. adjustable. ● Alarm Outputs: 2 speaker horns for rising and falling siren sound, and bell/siren up to 1 amp load. Cat L-5056

Amazing  
value at \$69<sup>50</sup>

## Normally Closed Alarm Sensors Magnetic Reed Switch

The reedswitch/magnet set is mounted so the magnet holds the switch closed. If the door is opened, magnetic effect is lost, and switch opens, triggering alarm. These sets are ready to screw onto surface.



Cat L-5210

1 — 9 ..... \$2.45 each  
10 up ..... \$2.20 each

Magnet only in case: Cat L-5214  
1 — 9 ..... \$1.30  
10 up ..... \$1.00

Reedswitch only in case: Cat L-5215  
1 — 9 ..... \$1.85  
10 up ..... \$1.55

## Dry Reed Insert

No case: ideal for 'burying' in woodwork, etc, to make completely secret and tamper-proof installation. Cat S-1946

ONLY 60¢

## Window Foil

A roll of very fine aluminium foil with adhesive backing, designed to be stuck onto glass. If the window is broken or cracked, the foil fractures, setting off the alarm. It makes a good deterrent even if not actually connected to an alarm. Approx. 32m roll, 6.35mm wide tape. Also great for sticking onto sliding glass doors so you can see they're there: helps prevent accidents. Cat L-5200



\$6<sup>65</sup>

## Tape Blocks

A terminating point for the L-5200 circuit tape. They are self adhesive with screw terminating points. Ideal for windows Cat L-5205



50¢

## How to use these Control Units.

Your alarm system can be simple or as complex as you wish to make it. All you do is add the necessary alarm sensing devices to protect the areas of interest.

Sensing devices fall broadly into two categories. 'normally open' (NO), and 'normally closed' (NC). These refer to the state of the device when no alarm is being detected. On a detection, the device switches to the opposite category (eg. a NO device closes, and a NC device opens).

Normally open devices are such things as pressure mats, heat switches, panic buttons, etc, which are connected to the alarm's 'instant' NO terminals — as all these devices are inside the building, one assumes the intruder has broken the first line of defence — so an immediate alarm is required.

Normally closed devices are such things as magnetic reed switches, window tape, shock switches, key switches, etc — perimeter defences where a short delay is often required to give the legitimate user time to turn off the alarm. These connect to the NC 'delay' terminals of the control module.

Many of these devices are shown on the next page.

## Wide Angle Radar Motion Detector

One of the most advanced radar motion detectors now available. Its very compact package and adjustable field pattern provide for unique, versatile applications. This unit is ideal for multiple sensor operations.

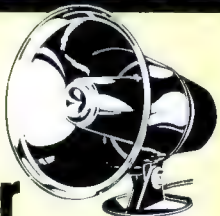
- Features: ● Compact — only 101mm x 44.5mm. ● Weighs a mere 0.23kg ● Adjustable beam. ● Ceiling or wall mount. ● Exceptional wide beam pattern. ● DC 12V power.

PLEASE NOTE: This motion detector can be used with our alarm systems: Four Sector Control Module. Cat L-5056. Bookshelf Alarm Control Unit. Cat L-5102. Ultrasonic Alarm Unit. Cat L-5108. Home Alarm Control Module. Cat L-5060 Cat L-5000



\$95

## Quality Siren Speaker



A neat horn type speaker with electronic siren module built-in. It delivers an ear-splitting, penetrating wail that can be heard for blocks. It's weatherproof, so it can be mounted inside or out. Great for cars, trucks, caravans, etc. Operates on a low current from 12V. Ideal for use with a siren timer (Cat L-5110).

Cat L-7026

Value at  
only \$27<sup>95</sup>

Now 35 stores across Australasia



## Economy Modules Home Alarm Control Module

A complete home, business or factory alarm control module. This unit permits soundless entry and exit for added security and owner convenience. The module has both N.C. (normally closed) circuit for doors, windows, etc., and N.O. (normally open) circuit for smoke, heat, vibration, panic button etc. After alarm triggers it will auto-reset after approximately one minute. 12 volt DC operation with low current drain and low cost maintenance.

Cat L-5060



ONLY  
**\$29<sup>50</sup>**

## Bell/Siren Timer Module

A neat unit that can be added to an existing system or incorporated into a new installation. The unit is used with a lock-on control system to give an automatic turn-off after 15 minutes if an alarm condition is triggered. Operates from 6 to 12V. Features an indicator light to show alarm state was triggered. Ideal for use with our siren speaker (Cat L-7062).

Cat L-5110

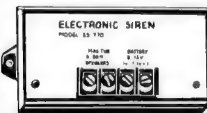


VALUE AT  
**\$12<sup>95</sup>**

## Electronic Siren Driver

When used with the horn speaker (Cat C-2705) or any other 4-8 ohm speaker, this unit will deliver an earsplitting wail, 103dB @ 3M from 12V. Features a heavy duty output stage and operates from 6 & 12V. Could be used in association with the Bell Siren Timer Module (Cat L-5110) or any control module.

Cat L-5115



ONLY  
**\$12<sup>95</sup>**

## Normally Open Alarm Sensor Pressure Mat

An ultra thin mat for placing under carpets, in walkways, etc. N.O. in the standby state, goes closed circuit when walked on. Can be used in doorways of shops as customer entry detector.

Cat L-5270

**\$19<sup>50</sup>**



## "70,000 CARS STOLEN IN AUSTRALIA EACH YEAR"

Your car is one of your greatest and yet most vulnerable investments. A portable asset, it is usually within easy reach of professional and amateur thieves. If your car is stolen and you're unlucky, you'll see your car again as a mangled wreck or a burnt-out shell. Avoid the heartache and inconvenience, fit one of Dick's inexpensive alarms.



Latest technology

## Remote Car Alarm



DOC Approval No. 214063.

Help stamp out car thieves - particularly the ones knocking off your car! The first thing they know when trying to break into your vehicle is the tap on the shoulder from the boys in blue! This incredible alarm transmits a message to a small pocket receiver if your car is broken into or hit (in an accident). It works up to a kilometre away from where you leave the vehicle, too!

Cat L-5095



Module and Beeper at only **\$99<sup>50</sup>**

### Barrel Switch

Barrel type key switch with two keys, used at entry-exit point for turning the alarm system on-off. Ideal for cars!

Cat L-5290

**\$7<sup>25</sup>**



### Vehicle Alarm Switch

N.C. under spring tension, will go open circuit when vehicle door is closed. Ideally suited to vehicles whose courtesy lights are not actuated by the doors.

Cat L-5256

**\$1<sup>80</sup>**



### Shock Switch

This is a mechanical switch used for detecting sudden movement. Has such uses as machinery moving parts, protection covers, etc.

Cat L-5250

**\$4<sup>25</sup>**



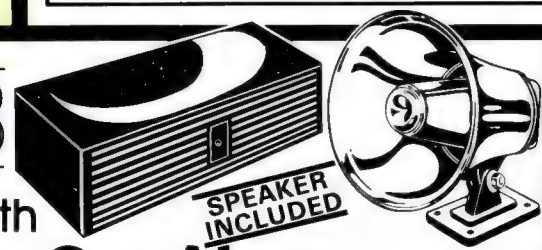
NEW FOR

## The Dick Smith Ultrasonic Car Alarm

At last - a professional alarm system which will not only protect the car, but its contents as well. This ultrasonic alarm detects movement within the car, without relying on door opening, etc (boot, bonnet can be protected via separate switches if required).

Easy to install, very effective - and very difficult for the thief to beat.

Cat L-5080



SPEAKER INCLUDED

VALUE AT  
**\$79<sup>95</sup>**

## Car Protection The Simple Way!

Your car is a pretty heavy investment and car stealing is on the increase. Hundreds of customers have found out how delightfully simple the Dick Smith car alarm is to install.

The alarm works on the 'current sensing' principle: when someone opens a door, or tries to start the car, the alarm senses a current being drawn - and sets off the alarm. The boot and bonnet can also be protected. The alarm is self-contained and may be mounted anywhere it can be heard. Installation should take the average handyman no more than about one hour.

### SPECIFICATIONS:

- Exit delay 20 seconds
- Entry delay 10 seconds
- Auto reset after 1 minute
- Output 5 watts, 106dB
- External protection by instant triggering
- Operates on all 12V negative earth vehicles
- 129mm diameter x 152mm long.

Cat L-5090  
**\$49<sup>50</sup>**

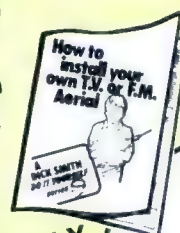




# TV/FM Accessories

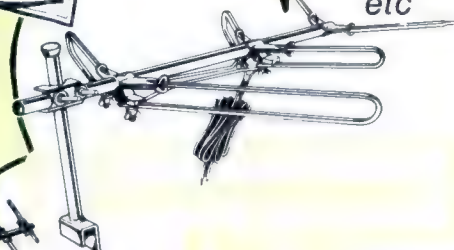
Save a fortune  
by installing your own Antenna! Find out how  
with this handy Dick Smith guide

Worried about the high cost of labour? Want to save a fortune by installing your own TV or FM stereo antenna? It's easy... with a little help from Dick Smith. Dick has prepared this informative leaflet giving you all the tips, pitfalls & information you need to know to erect your TV or FM antenna - professionally. We strongly recommend before you put up an antenna you read this leaflet. At just 50¢ it's a steal! And if you buy any outside antenna from us, we'll give you a copy. **Cat. B-6010**



**ONLY 50¢**

For boat caravan camper, etc



**At last!** There's a TV antenna which is truly portable! It's the perfect answer for all those people who like to be able to get good reception while they're away from home. In caravans for example! This antenna is a dual folded dipole with director, offering first class reception on all Australian VHF channels. It can be used with either vertical or horizontally polarized transmissions. The antenna is supplied with a bracket designed to clip over the guttering, etc, or it can be used with the standard TV mast. 300ohms impedance, suits most situations. Supplied complete with 300 ohm cable

**Cat. L-4026**



**OUR BIGGEST SELLER!**

**Excellent directivity**

This antenna has proven to be our biggest seller. Extremely popular in the metropolitan areas, and near fringe areas, because it has been designed to give maximum gain on channels 0 - 2 - 9 & 10. Complete with mast clamp; suits twin lead with its 300 ohms impedance. Use a balun if you want to use 75 ohm coax cable with this antenna.

**Cat. L-4022**

**Impedance 300 ohms**

**ONLY**

The largest model in our range. Of the enormously successful 'log periodic' design, this broad band antenna has high gain, and high front-to-back ratio (very important in cutting out unwanted signals or ghosts from the sides or the rear of the antenna). It's the ideal antenna for all channel reception in the most difficult areas - even on the fringe.

**Cat. L-4030**

**Impedance 300 ohms**

**Value at**

**How's your UHF picture?**



UHF TV has started - and the stations are being flooded with complaints about poor reception! In the majority of cases, a good outside antenna would alleviate many of the problems viewers are finding at the moment. Many people do not seem to realise that the good old TV antenna that they have had up for years simply will not give them a picture on UHF - unless they're dead lucky!

If you're finding trouble picking up the UHF stations, try putting up a new UHF antenna. Your problems could be solved - for less than \$30. And it's far less than 'getting the man out' to have a look at the supposedly crook TV set! Another Dick Smith quality import, this UHF antenna is designed to cover the entire Australian UHF TV band - when it is fully utilised. It covers high gain (10.4dB), with a very high front to back ratio (24dB) - very important on UHF. It also features a variable mounting clamp so the antenna can be aimed precisely at the transmitter - even from low down.

**Cat. L-4028**

**Value \$21.50**

## Everything you need to mount your Antenna



28cm long, can be used for wall or barge mounting of vertical masts up to 5cm diameter. Complete with saddle clamp assembly

**Cat. L-4152**

**\$6.95**



69cm long, used for mounting vertical mast sections up to 5cm in diameter. Complete with saddle clamp assembly

**Cat. L-4153**

**\$5.95**



This is a double arm, single strap, easy to mount unit. Complete mast mount assembly.

**Cat. L-4154**

**\$14.95**



Designed to mount any TV antenna from a vertical surface, barge board, wall, chimney, etc. 139cm long

**Cat. L-4150** (Hot dipped galvanised, to prevent corrosion.)

**\$9.00**



For holding two pieces at right angles: eg. mast pipe onto mount, or antenna onto mast pipe. U bolt & V clamp.

**Cat. L-4165**

**\$1.55**



Complete with standoff and strap assembly. Used for standing off mast sections. 8.8cm long. Holds ribbon or coax.

**Cat. L-4512**

**80¢**



Holds flat ribbon or coaxial cable off walls etc. 8.9cm long complete with grommet insulator.

**Cat. L-4510**

**45¢**

This is a 2.44m mast section galvanised and rustproof. A convenient way of mounting your TV aerial. Ideal for use with any wall mounts and chimney mounts illustrated on the left of this page!

**Cat. L-4156**

**\$6.60**





Covers  
all FM station  
Frequencies

If you want top performance from your FM tuner, you're going to need an FM antenna. But most FM antennas cost a fortune - so most people put up with the ribbon type below. That's fine if you live close to the transmitter, but if you don't, Dick has this 3 element FM antenna manufactured overseas, so it costs a lot less than other antennas. But its performance is just as good as antennas you'd pay twice as much for...and more! Very easy to erect, light weight, and with 300 ohms impedance, suits almost all FM receivers. Try it: you'll be surprised how good FM sound can be.

Cat. L-4064

**\$17<sup>95</sup>**

## Indoor Ribbon TV/FM Antenna

This is a simple flexible dipole antenna suitable for both FM and TV reception. It is best suited to primary reception areas where it is unnecessary for a full scale outside system. It is ideal for use in situations where space is at a premium. Simply connect to your set's terminals, find the best reception position and then secure with thumb tacks or adhesive.

Cat. L-4060

**\$1<sup>85</sup>**

## Economy Indoor Antenna

If you're lucky enough to live in a strong signal area, you'll probably get by with one of these spiral antennas, even with colour. Don't expect miracles if you're out of sight of the transmitter, then it is quite probable that you will require an outside antenna like those opposite.

Cat. L-4010

**\$5<sup>00</sup>**

## Baluns

These are special radio frequency transformers used for converting unbalanced or mismatched lines and terminations to balanced and matched operation. Used in aerial-set or set-aerial conversion from 300 ohms to 75 ohms (or vice versa)

### Outdoor Aerial Balun

This balun is designed for outside use with your existing aerial to allow you to convert to coaxial cable. 300 ohm to 75 ohm. It comes complete with coaxial plug, cover and instructions.

10 up ..... \$1.75

Cat. L-4452

**\$2<sup>00</sup>**

### TV Game Balun

Makes it easy to use your colour TV game with a black and white set. Spade lugs make connections simple - no soldering required. Excellent value.

Cat. L-4454

10 up ..... \$1.75

### Universal Balun

The universal balun - has 300 ohm screw terminals & 75 ohm coaxial plug - can be used either way round. Ideal for the person requiring a balun but not really knowing which type!

Cat. L-4456

10 up ..... \$1.75

**\$2<sup>00</sup>**

### TV Game Switch Box/Balun

If you have a TV game you're probably getting sick of swapping cables every time you want to use it... Problem solved with this switch box/balun! Switch between 2 inputs - and it gives you the choice of 75 or 300 ohm input.

Cat. L-4500

**\$3<sup>95</sup>**

## Splitter/Couplers

If you want to use one antenna on several sets, or use two or more antennas on the same set, you need a splitter/combiner. Connected one way they act as a splitter (one antenna in, multiple out); reverse the connections for a combiner (several antennas in, single out).

### Splitter/Coupler for 4 TV Sets

Handles either colour or black and white TV with absolute minimum loss of signal strength even when all sets are operating at the same time. Compact plastic case can be mounted at any convenient location near antenna lead. 300 ohms input/output impedance. **NOTE:** If all inputs are not being used at once, a 330 ohm resistor should be placed across the unused outputs. Covers 50-890MHz.

Cat. L-4220

10 up ..... \$4.40

**\$4<sup>90</sup>**

### 2 Way Splitter

As above but 2 sets only. Covers 50-890MHz.

Cat. L-4218

10 up ..... \$2.40

**\$2<sup>85</sup>**

### 4 - Way Splitter

This splitter is housed in an attractive plastic box with snap lid. It features nickel plated easy to connect screw terminals. It can be mounted in any position. Used to operate up to 4 TV sets from one aerial when using 75 ohm coaxial cable. Covers 50-890MHz. Isolation 30dB. Insertion loss 6.8dB. **NOTE:** If all outputs are not being used at once a 68 ohm resistor should be placed across the unused outputs.

Cat. L-4474

10 up ..... \$4.45

**\$5<sup>00</sup>**

### 2 - Way Coaxial Splitter

As above for 2 sets only. Covers 50-890MHz. Isolation 25dB. Insertion loss 3.5dB.

Cat. L-4472

10 up ..... \$3.20

**\$3<sup>65</sup>**

### Indoor 75 ohm Splitter

A nifty little splitter/combiner for indoor use. Fitted with standard TV co-ax plugs & sockets just plug it in without any messy wiring. Normally used for 2 TV sets from one antenna, but can also be used 'backwards' to combine two antennas into one TV set.

Cat. L-4270

10 up ..... \$1.80

**\$1<sup>80</sup>**

## Mast Head Amplifier

At last there's a mast head amplifier which can improve your TV reception at a low cost. Dick Smith is proud to offer this outstanding masthead amplifier, designed specifically to suit Australian TV & FM characteristics.

★ Ideal for fringe reception areas ★ Covers all Australian TV & FM frequencies ★ Helps reduce snow and ghosting ★ Allows up to 100m of co-ax between antenna & set get the best location! ★ Maintains good signal levels when multiple are used (with splitter). ★ Easy installation (instructions supplied).

### SPECIFICATIONS

BANDWIDTH: 40 - 230MHz

Gain: Approx. 18dB

Input Impedance: 300ohms

Output Impedance: 75 ohms (co-ax cable) plus 300 ohms (ribbon)

Power supply: 9V DC @ 200mA (supplied)

**\$42<sup>00</sup>**

## 75 Ohm Wall Socket

Mounts on wall or skirting board. Mount a number around the house for portable TV viewing.

Cat. L-4504

**\$3<sup>00</sup>**

### In Line Joiner

'Two-way' socket suit P-2020 P-2070..... 1-9.....

**\$1<sup>10</sup>**

10 up **\$1<sup>00</sup>**

Panel socket suit P-2020

P-2040..... 1-9.....

**95¢**

10 up **85¢**

Plastic Line socket

P-2031..... 1-9.....

**95¢**

10 up **80¢**

Plastic Line plug

P-2021..... 1-9.....

**45¢**

10 up **40¢**

Metal 75 ohm TV coax line socket

P-2030..... 1-9.....

**\$1<sup>40</sup>**

10 up **\$1<sup>26</sup>**

Metal 75 ohm coax plug

P-2020..... 1-9.....

**\$1<sup>20</sup>**

10 up **\$1<sup>08</sup>**

## Wall Plate with 75 ohm Socket

Plastic wall plate with built in 75 ohm TV connector. Can also be used as a 75 ohm splitter.

Cat. P-2042

**\$2<sup>95</sup>**

## Ribbon Wall Plug and Socket

Designed to mount on wall or skirting board. Complete with mounting screws and plug.

Cat. P-2080

**\$1<sup>85</sup>**

## 300 Ohm Plug

An individual plug as used in the above socket.

Cat. P-2082

**90¢**

## TV Antenna Clip

Strong plated springs with screw terminals and coloured plastic handles. Quicker way to connect or disconnect antenna lead-in cable or TV set, FM or radios, etc. Ideal when using portable sets.

Cat. L-4236

1-9..... **60¢** 10 up..... **50¢**

## TV & FM Cable: 300 Ohm Flat Ribbon

Low loss 300 ohm ribbon for good signal areas.

Cat. W-2070

per metre **15¢**

Bulk price for 100m roll:..... **12¢**

## 75 Ohm Coaxial Cable

Low loss coax, ideal for colour installations. Black coloured for long life.

Cat. W-2080

per metre **40¢**

Bulk price for 100m roll:..... **30¢**

## TV Connector Cable

2m 75 ohm coax, with plugs each end. Ideal for connecting TV to wall outlet.

Cat. L-4506

**\$3<sup>00</sup>**

## Nail-in Cable Clamps: Ribbon Type

Suitable for running flat ribbon cables on walls, skirting boards etc. Gives a neat professional job.

Cat. L-4514

1-9.....

**20¢**

10 up..... **17¢**

## Coax Type

As above but suitable for coaxial cable.

Cat. L-4515

1-9.....

**5¢**

10 up..... **3¢**



# Audio

Our continuing  
top selling VHF radio

## THE DICK SMITH Communicator

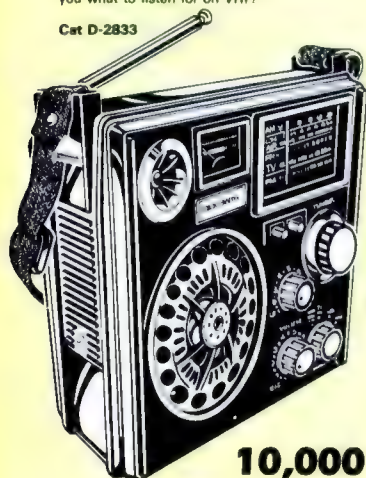
There's a different world of radio you probably haven't even discovered yet. It's 'up there', on VHF (Very High Frequency). This superb portable Communicator VHF Radio will introduce you to the world of VHF - without missing out on the radio stations you also want to listen to. Its six bands cover from the AM and FM broadcast stations, through the full 40 channel CB band, up to the VHF bands from 107 to 174MHz.

These bands include the entire aircraft band, plus the 2 metre amateur band, police, fire, ambulance frequencies, harbour control, two-way car radio, taxis, business, etc.

Check out these exclusive features:

- 4 bands with handsome 'military' look.
- 240V AC and 6 volt DC (battery) operation.
- Complete with multi-section adjustable telescopic antenna, for vertical or horizontal polarization.
- Unique tuning meter which also doubles as a battery strength meter.
- Earphone jack for private listening (earphone supplied).
- INCLUDES OUR EXCLUSIVE VHF LISTENING GUIDE - which tells you what to listen for on VHF

Cat D-2833

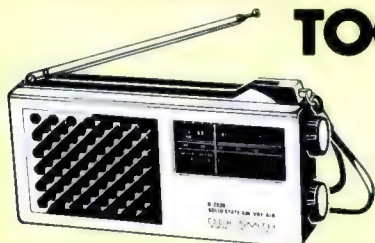


ONLY  
\$65

INCLUDES  
FREE VHF  
LISTENING  
GUIDE

OVER  
10,000 SOLD!

## Air Band (VHF) Radio with AM TOO!



You've probably wondered what goes on, what pilots and air traffic controllers talk to each other about... Wonder no more! This budget aircraft band radio tunes the entire band, so you don't miss a thing. It also covers the normal AM broadcast band too, so you won't miss out there, either! Operates from 4 penlight batteries (supplied), with telescopic whip antenna for aircraft band and internal ferrite rod for broadcast band.

**SPECIFICATIONS:** Ranges: 530 - 1600kHz; and 106 - 174MHz. IF: 455kHz and 10.7MHz. Output Power: 450mW max. Speaker: 6.4cm. Power Source: 6V DC (4 penlight cells). Circuitry: 10 transistors and 7 diodes. Size: 22 x 11 x 5cm.

Cat D-2836

ONLY \$29<sup>50</sup>



## Mains or battery Dick Smith AM/FM Radio

Here's an AM and FM radio with the choice of either battery operation (uses 4 penlight cells Cat S-3003 - not supplied) or 240V AC, the AC cord and plug will actually tuck inside the radio when not in use. The large speaker gives superb sound with clarity and very little distortion. The radio contains 10 transistors and 6 diodes and has a maximum power of 400mW. Dimensions are 210(w) x 140(h) x 51(d)mm and weight is 600 grams. Ideal for use anywhere, small enough to pack when going on holiday, take it to the beach, use it in the kitchen or on a picnic.

Cat A-4325

INCREDIBLE VALUE \$23<sup>95</sup>

## Want a clock/radio? look at these two superb units



### Mini Clock/Radio

Super small so it takes up next to no space on your bedside table... or in the kitchen. Fine quality AM and FM radio reception with an accurate digital clock as well!

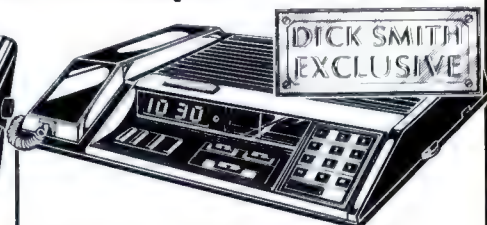
Features include:

- Sensor Snooze/Sleep Off button
- Brightness switch
- Fast and Slow Set button
- Wake to alarm or music
- AM and PM Digital Readings
- Volume and Tuning Control

With all these features and the simulated walnut finish, this clock is a pleasing addition to any bedroom decor

Cat A-4440

AMAZING  
VALUE \$34<sup>50</sup>



### Telephone Clock/Radio

Amazing technology breakthrough! Don't clutter up your desk with a phone, a clock, and a radio... Now you can have a clock radio AND telephone in the one unit! It must be the ultimate in convenience.

Look at the features:

- Deluxe AM/FM radio with 3" dynamic speaker
- Digital alarm clock with snooze alarm, sleep time control - wake to music or buzzer, green LED display.
- Battery back-up for clock and alarm
- Push button telephone with last number re-dial, mute, adjustable ring, LED in-use indicator
- Auto radio muting when telephone rings or is in use.

You'd expect to pay a fortune for this one, but look at Dick's special price.

Cat F-5100

COMING SOON \$79<sup>00</sup>

## Pocket size AM/FM Radio

Put in your coat pocket or slip it into your handbag - wherever you put this radio it will always be ready to give you superb sound on both AM and FM. The tuning dial and volume controls are easy to use and for reception there is a built-in ferrite rod for AM and a fully extending antenna for FM. Uses 4 penlight batteries which are supplied for instant use!

Cat A-4364

VALUE  
UNBEATABLE  
\$14<sup>50</sup>

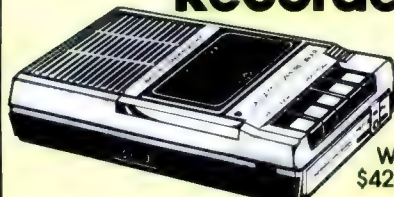


## Quality Glass Fronted Hi Fi Cabinet

Go elsewhere and pay up to \$100 for these pro-quality Hi Fi cabinets, or take advantage of Dick's fantastic scoop purchase. Glass fronted to keep dust off your priceless records. Superb imitation wood grain finish suits any decor. Designed to hold Hi Fi equipment on top. At this price, you could buy two, or three, or... Cat A-0109

INCREDIBLE SAVING \$29<sup>95</sup>

## Battery or Mains DICK SMITH Cassette Recorder



WAS  
\$42.50

NOW  
ONLY  
\$39<sup>50</sup>

Top value! A cassette with built-in condenser mic, 240V or battery operation, piano key function controls, automatic stop at end of play, auto level recording... it all adds up to a top selling cassette recorder! Why pay more for a 'brand' name and do no better? The Dick Smith cassette recorder is complete with earpiece, batteries & instructions. And just look at our low, low price. Cat A-4092



# Top Value in take anywhere sound!



## Go anywhere FM stereo/radio

Unbelievable quality – that's the new pocket stereo radio from Dick Smith. With the very latest in circuitry, this FM receiver and its matching Mylar headphones will amaze you with its thrilling sound fidelity.

Small enough to fit in a shirt pocket (measures a miniscule 97 x 67 x 10mm) it really is unobtrusive. Don't be fooled by the 'el cheapo' FM radios offered elsewhere: your ears will notice the difference! Now you can have fine quality FM music wherever you go and no one will know!

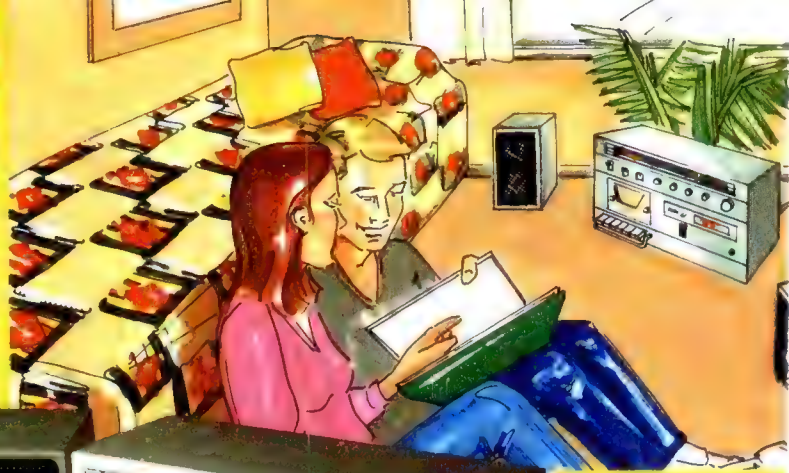
ONLY **\$49<sup>95</sup>**  
Cat A-4000

## AM/FM radio cassette player

The ultimate in personal listening pleasure. That's the fantastic SoundTripper V stereo cassette/radio. Not just another cassette player – nor another radio. This has both a full fidelity stereo cassette player with METAL tape facility, plus a superb FM and AM radio – all in the one unit, and at a price less than you'd pay elsewhere for either cassette or radio! Ideal for today's person on the move – walking, working, sport, – or even jogging! Complete with lightweight hi-fi headphones – and you can even plug a second set of headphones in to share your music with a friend.

ONLY **\$99<sup>50</sup>**  
Cat A-4015





Go anywhere  
Miniature Hi Fi  
ideal for bedrooms  
... even take them to  
the beach

## DICK SMITH 3 in 1 SYSTEM

Yes! Take it anywhere for real hi-fi performance. Operates from mains, internal batteries or external 12V (eg. car cigarette lighter plug) and offers a full range of modes and inputs. Your choice of tuner (AM and stereo FM, of course PLUS shortwave!) or quality cassette deck with normal chrome and metal capability with inbuilt 'sleep' provision. The speakers attach for portable use (with automatic speaker connection) or separate for home use with built-in speaker cables. Amazing value - amazing performance for such a small system!

- Measures just 580 x 266 x 130mm INCLUDING speakers
- 12 watts output power
- 60 - 14000Hz response with metal tape
- 3-way power, 3 receiver modes, 3 tape capability

Cat A-1000

AT ONLY  
**\$199**

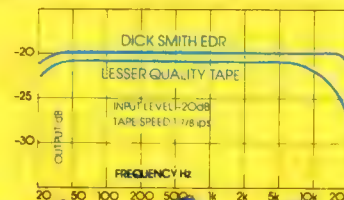


Now you can enjoy  
quality tape that doesn't  
cost the earth

NEW  
FOR **83**

## Dick Smith low noise & Extended Dynamic Range

You told us you wanted a better cassette, so we searched the world. And we found them - right here in Australia. Amazingly high quality - and you don't have to pay the high import duty of imported quality tapes. And they really are just as good as those tapes you'd pay \$\$\$s more for: read just a few lines from the test laboratory report: "... hiss level on playback is very low compared to similar tapes and almost non-existent when Dolby is used..." dynamic range is also good with no perceptible distortion to 0dB. Frequency response is better than most tapes... Cassette shell is well constructed and tape transport appears very smooth... certainly one of the better tapes. So don't think that only the packaging is new. EVERYTHING is new and much improved. The only thing the same is the low, low price!



**C60LN**  
(Low Noise)

Cat C-3350  
\$1.50 ea  
10 or more  
\$1.00 ea

**C90LN**  
(Low Noise)

Cat C-3352  
\$2.00 ea  
10 or more  
\$1.20 ea

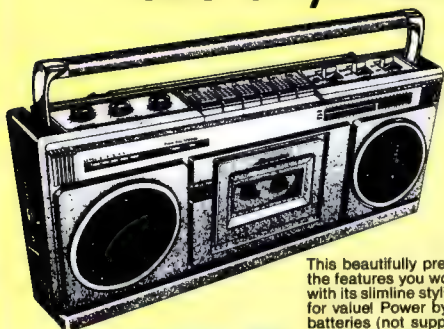
**C90EDR**  
(Extended  
Dynamic Range)

Cat C-3354  
\$2.75 ea  
10 or more  
\$1.90 ea





Take anywhere sound!



## AM/FM/SW Radio Cassette

This beautifully presented portable radio/cassette has all the features you would expect in a quality stereo unit, and with its slimline styling and great sound, you can't go past it for value! Power by 240V AC (lead supplied) or 6 'D' size batteries (not supplied Cat S-3001, 40c each). **Features include:** LED indicators for FM Stereo and Tuning plus LED Level output display, Sleep Facility, Tape Counter and Automatic Level Control, Power Output is 3 watts maximum and it weighs only 1.7kg. **Cat A-4025**

**\$125**

## Micro Cassette Recorder

Fantastic for busy executives, students - anyone who needs to take notes. Features normal and half speed so a 30 minute micro cassette can give you 60 minutes of recording! It uses a single 9V transistor type battery and there is provision for connecting an external AC adaptor. The very small size, with built-in electret microphone, electronically controlled motor plus thumb operated, slide action record, playback and rewind controls, make this a top unit in both quality and performance.

**Specifications:** Semiconductors - 5 transistors, 2 thermistors and 1 diode; Power output 150mW; Size 63(w) x 125(h) x 35(d)mm; Weight 285 grams; Complete with battery, strap, micro cassette, earphone and instructions. **Cat A-4040**

VALUE AT **\$45**

STANDARD MICRO CASSETTE (30 minute)  
Cat C-3360 \$2.95ea 10 up \$2.50ea

## Mini Cassette Recorder

Small size - and it uses standard cassettes! Features a 'review' button (very handy for lecture notes, dictation etc) plus fast forward and pause buttons. Can operate from internal batteries or optional AC adaptor. **Cat A-4060**

AT ONLY **\$47<sup>50</sup>**

## National cassette recorder

Although this unit has been recommended for use with computers it makes an ideal home cassette player/recorder also. It can be used with the 240V AC mains lead supplied or with 4 'C' type batteries (not supplied - Cat S-3002 @ 35c each). Piano key operation with single touch record function and a mechanical pause. The dimensions of the unit are: 14.9(w) x 7.4(h) x 26.2(d) cm and it weighs 1.3kg without the batteries.

**\$82<sup>50</sup>**

## low cost cassette care

If you don't de-magnetise and clean your cassette deck heads, your tapes can be damaged, your music will sound awful and your heads may not last as long!

### Head Demagnetising with Cleansing Fluid

Keep them in tip-top condition with this kit. Has inbuilt magnet which automatically de-magnetises heads when played, and special cleansing fluid to remove damaging deposits. **Cat C-7090**

**\$4<sup>50</sup>**

### Head cleaning cassette

Cassette with special cleaning tape instead of the recording tape. Simply play the cassette in your deck or recorder and you'll automatically clean the heads! **Cat C-7080**

**99c**

### Head Care Kit

Swabs, cleaning fluid and inspection mirror to make sure your heads are properly cleaned. With instructions. **Cat C-7088**

**\$2<sup>95</sup>**

## Accessories to expand & improve your system Tape Dub Box

An easy way for the tape buff to get the results he wants without miles of cords, plugs & mess! Simply switch between the inputs & outputs required!

Here's what it will do

Dub from tape 2 to tape 1  
Record onto tape 1 from amplifier  
Dub from tape 1 to tape 2  
Record on tape 2 from amplifier  
Play tape 1 through amplifier  
Play tape 2 through amplifier



**\$23<sup>95</sup>**

Cat C-7220

## Tape head Demagnetiser

Ideal for all audio tape recorders (NOT suitable for video cassette recorders!) It simply plugs into the 240V AC mains, and is held near the head and drawn away slowly to demagnetize it thoroughly. Most tape heads should be demagnetised after every 5 - 10 hours of use: if you don't, your sound quality can suffer considerably, as well as damage your recordings. Full instructions supplied with the demagnetizer. **Cat C-7222**

only **\$7<sup>75</sup>**

## Cassette Storage Case

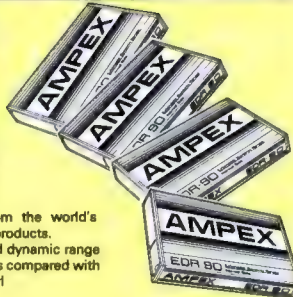
A deluxe vinyl cassette case which will not only protect your valuable cassettes - it will also allow you to find them when you want them! It's ideal for the sound enthusiast on the move - holds up to ten cassettes in their cases; more without cases. **Cat C-3810**

for only **\$4<sup>45</sup>**

NEW FOR 83

## Famous AMPEX cassettes

Quality C90 (90 minute) tapes from the world's leading manufacturers of magnetic products. Your choice of low noise or extended dynamic range types - and look at our low, low prices compared with what they were selling for nationally!



## BIG SAVINGS

COMPARE  
THESE  
PRICES!

Cat	Type	Was \$	Now \$	10 Up \$
C-3082	C-90ELN	3.15	2.49	2.24
C-3088	C-90EDR	4.15	2.99	2.69

## YOU REAP THE BENEFIT

## Make your hi-fi sound suit your room with the DICK SMITH Graphic Equalizer

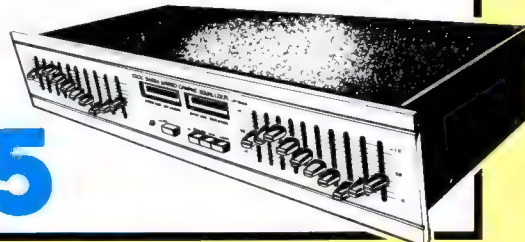
Not JUST a graphic equalizer, but a LED VU meter as well! It will add new dimensions of sound to your system by enabling you to set up your system correctly for a balanced sound and with careful use you can bring out and emphasise any particular instrument or vocal that you want. In today's world of Hi-Fi, the graphic equalizer has found its place in many Hi-Fi systems due to its versatility. The 10 bands cover the following frequencies: 30Hz, 60Hz, 120Hz, 240Hz, 500Hz, 1kHz, 2kHz, 4kHz, 8kHz and 16kHz in steps from minus 12dB to plus 12dB! LED meters show the output in both stereo channels and for added versatility you have the choice of two switchable inputs and outputs.

Cat A-1650

Get the most from just about ANY hi fi system!

amazing  
value

**\$155**





# Audio

**NEW!**  
**Carbon fibre**  
 record cleaning brush

Very latest technology to keep your records sparkling clean. **Cat C-7096** **\$9.75**

Also limited stocks of these disc cleaning aides.  
**Cat C-7092** Deluxe cleaning set **\$3.50**  
**Cat C-7094** Arm & brush cleaner **\$4.95**



## Semi-Automatic Belt Drive turntable

Here's top value: a semi automatic belt drive turntable, with all the 'mod cons' such as variable speed strobes, damped tone arm with cueing lever, anti-skate, auto return, quality magnetic cartridge etc. . . . all mounted in a deluxe shock damped plinth with a perspex hinged lid!

**SPECIFICATIONS**  
**Drive System:** Belt drive semi-automatic system  
**Motor:** 4 pole synchronous motor  
**Turntable:** Aluminium diecast 310mm  
**Speed:** 33 1/3 and 45 r.p.m.  
**Wow and Flutter:** 0.06%W RMS (JIS)  
**Cartridge Type:** moving magnet **Cat A-3080**

available  
 at only **\$129**

## THE DICK SMITH RANGE OF QUALITY MYLAR 'PHONES

### unbeatable price

Amazing low price for 'phones! Yes, these quality Mylar headphones are less than \$7.00 - just the thing for the kids' stereo! Lightweight and comfortable, they come complete with a lead and 6.5mm stereo plug (suits almost all headphone sockets), 8 ohms impedance, with a frequency range of approximately 100 to 15000Hz.

**Cat C-4101**



amazing value  
**\$6.95**

### separate volume controls

Just look at these: ultra-thick and comfy padding to give the best possible 'feel'. And these top quality Mylar phones also give absolutely superb performance! The headband is also very wide for minimum pressure and the phones themselves are individually adjustable. Each phone has its own volume control so you can have your music just the way you want it. 8 ohms impedance, 20 to 20,000Hz frequency range and come complete with lead and 6.5mm stereo plug. **Cat C-4105**



**\$24.50**

### Top of the range

Our top-of-the-line headphones. Precision made ultra light-weight Mylar types will astound you with their staggering dynamic range, their faithful sound reproduction and feather-light feel. Be warned - you can forget you have them on! 8 ohms impedance, 18 to 20,000Hz range; with lead & 6.5mm stereo plug. They may be a little more expensive - but you'll agree they're worth every cent! **Cat C-4124**



**\$32**

### low cost & light weight



**\$9.95**

Specifically intended for use with today's tiny radios, cassettes, etc. - they even come fitted with a 3.5mm stereo plug to suit. PLUS, at no extra charge, there's a 3.5 to 6.5mm adaptor plug so you can also use them on your home hi-fi. Many walkie stereos, radios etc. have dual headphone sockets - now you can share your music with a friend! at our price, they certainly won't break the bank! **Cat C-4106**

**DICK SMITH PRICES - TEAC QUALITY**



### TEAC AM/FM TUNER

Unbelievable performance - not just on FM, but on AM too! If the 'weakest link' in your music system is your tuner, here's your chance to own a superb TEAC tuner which will probably be the strongest part!

**Look at these outstanding FM specifications:**  
 Harmonic Distortion - mono 0.08%  
 Sensitivity - 1.9uV  
 Signal/Noise Ratio (mono) 80dB  
 Frequency Response (-1dB) 30Hz-15kHz  
 Selectivity - 65dB . . . and the AM specifications are great too! **Cat A-1501**

was ~~\$199~~ NOW **\$175**

### TEAC 35 Watt RMS amplifier

Introducing the outstanding BX-330B DC integrated amplifier. With an astonishingly low distortion of only 0.006%, you get the ultimate fidelity demanded by today's audio perfectionist.

**Features Include:** Power output of 35W/channel • Frequency Response of 10Hz-100kHz • Preamplifiers - moving coil and moving magnet • LED power meters • Dual speaker outputs • Total Harmonic Distortion 0.006%.

The circuit is direct coupled for absolute minimum distortion, with a current mirror circuit low noise NF type equalizer. The power amplifiers are protected against short circuits or overloads. **Cat A-1301**

was ~~\$249~~ NOW **\$199**

### TEAC V33 'soft-touch' stereo cassette deck



Absolutely superb - that's the new TEAC V-33. From its magnificent new front panel styling through to the last component this cassette says 'quality! The perfect match for the above amplifier and tuner . . . or use it with virtually any other hi-fi system (operates superbly with the 'build-it-yourself' Playmaster MOSFET amplifier - see Kit section.)

With all three tape type compatibility (normal, chrome and metal) and full 30-16000Hz frequency response it's performance will really make the most of all your recordings - or make your readings the most!

**Specifications**  
**Wow & Flutter:** (WRMS) 0.06%  
**Frequency Response:** 30-16000Hz (metal, Co or CrO2 tape)  
**Signal/Noise Ratio:** 55dB  
**Inputs:** Line 98mV/50k ohms  
 Mic 0.39mV/-66dB (200 ohms or more)  
**Outputs:** Line 0.54V for 50k (or more) load  
 Phones 8 ohms  
**Winding Speed:** 95 seconds for C-60 cassettes  
**Power:** 240V 50Hz, 9W  
**Dimensions (mm):** 432 x 110 x 260 (wxhxd)  
**Cat A-3508**

**NEW FOR 83**

ONLY **\$179**

### Pre-built Playmaster Speakers

Designed by Neville Williams MIREX (Aust)  
 Editor-in-Chief Electronics Australia

Time is money - and if you haven't the time to build your own set of superb Playmaster speakers from our kits (see page 69) we have the two larger sizes available built and tested. For full details and technical information on these superb speakers see the kit section.

#### 5 YEAR GUARANTEE

All speaker drivers & cross-overs are fully guaranteed for five years in normal domestic usage (cabinets excluded)

#### Model 3-70LC

3 way system with 80W peak handling, with high & mid-range fader controls, in a 75 litre 'walnut' type finish enclosure. **Cat A-2374**

**\$485 PR**

#### Model 3-50LC

3 way system with 60W peak handling in a 53 litre 'walnut' type finish enclosure. **Cat A-2372**

**\$439 PR**





## Faders

### High & midrange level controls

Whether you have ready built speakers, or you're making your own speakers (or even modifying the Playmaster 200 & 250mm systems) these faders will give you the control you need over the sound from your system. Dual concentric, heavy duty wire wound elements ensure proper loading of the crossover and amplifier at all times.

- High power handling capacity
- Attractive & easy to mount
- Latest flush design
- Fully sealed front and back - no air leaks!
- $\pm 2$ dB calibration markings
- Available with either high or midrange labels.

**MID RANGE**  
Cat C-7210 ..... \$7.95

**HIGH RANGE**  
Cat C-7212 ..... \$7.95



## Switch your sound from room to room

### 7 Way Switch

Stereo selector switch enables you to select any combination of three sets of remote speakers.

Terrific for when you have parties in more than one room. How convenient to switch speakers as you move from room to room - even outside.

Attractive brushed gold finish steel wall plate fits any standard electrical box outlet.

Cat C-7208  
**ONLY \$8.50**

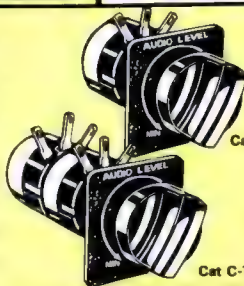
## Hi Power L Pad

Constant impedance. 15 watts continuous - 30 watts peak. Mono use 8 ohms impedance. Ideal for controlling higher powered speakers placed outside for the BBQ or in a large play room. Can be mounted on a remote panel or in the speaker cabinet. Complete with instructions. Ideal for tweeter control.

## Stereo L Pad

Controls audio level (attenuation 30dB to 0.5dB) whilst maintaining constant impedance matching between amplifier and remote speakers to ensure distortion free power transfer.

Panel or speaker enclosure mounting. Essential for correct installation of remote speakers. Medium power rating into 8 ohms. Complete with instructions.



Cat C-7204  
**\$6.65**

Cat C-7205  
**\$7.99**

## Crossover networks

### 2 way

Impedance of 8 ohms and a crossover frequency of approx 3kHz. The special inductor/capacitor circuit ensures good crossover characteristics. Can be used in your own designs for a two way speaker system.

Cat C-2512 **\$8.95**

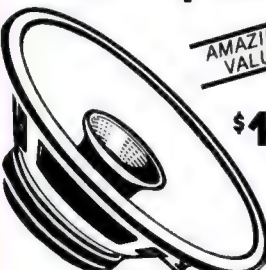
### 3 way

As used in the Playmaster 3/70L, 3/53L and 3/26L speaker systems. Has 8 ohm impedance. Two inductor network with non-polarised capacitors. Crossover frequencies of 1.5kHz and 5kHz plus high power handling capacity. This unit may be used in conjunction with Faders C-7210 and C-7212

Cat C-2513 **\$12.95**



## Dual Cone 200mm Speaker



AMAZING VALUE

**\$11.50**

An ideal speaker for the smaller enclosures or PA work. You can even wire them in series and parallel for the really big PA jobs! This is a dual cone speaker which allows for a greater frequency range than the more conventional single cone speakers. Typically the frequency range of this speaker is 30Hz to 18kHz. The speaker has a heavy duty magnet and comes as a dual impedance speaker, 4 and 8ohms, making it ideal for all jobs including car stereo systems. The heavy magnet coupled to the free edge suspension design allows for greater excursions of the cone under heavy audio passages.

Cat. C-2012

## Speaker Box Lining

**ONLY \$3.65**



Innerbond is light, clean, dust-free and easy to handle. Fibre bonding ensures that this cellulose acetate insulation will remain resilient and not fracture or break down due to vibration. Weighs approximately 300 grams/sq. metre and is 25mm thick by 700mm wide - this is a recommended density for most speaker usage.

Cat C-2862

## Economy Grille

Here's a high impact, 200mm plastic grille that has thousands of uses! If you want to place speakers into the wall or ceiling of your home then this grille makes an ideal cover. Also ideal on boats and in vehicles. Has four screw hole fitting points.

Cat C-2646

**ONLY \$2.95**



## Magnetic Earpiece

Magnetic 8 ohm earpiece with 3.5mm plug. Used extensively in the consumer industry to go with radios and cassette recorders etc. Lightweight for easy listening & miniature cord for non-tangle use.

Cat C-2780

**99c**

## Crystal Earpiece

Crystal high impedance earpiece with 3.5mm plug. Use it with your crystal set or for monitoring from any impedance output. Lightweight and easy to use.

Cat C-2765

**\$1.75**



## Quality Speakers at low prices!

### 300mm Woofer

As used in the Playmaster 300mm speaker system (3/75L). Superb reproduction of bass notes can be achieved by using this woofer and a suitable speaker box (i.e. the Playmaster 3/75L system).

**FEATURES:** ● 8 ohms impedance ● 80 watts maximum power handling ● Acoustic suspension design driver with a free air resonance of 35Hz.

Cat C-2022

**\$44.95**

### 250mm Woofer

As used in the Playmaster 250mm system (3/35L), it can be used with the speakers on this page for constructing a great speaker system or it can be used as a replacement speaker for any system using a 250mm woofer.

**FEATURES:** 60 watts maximum power handling ● Free edge design ● 8 ohms impedance ● 35Hz free air resonance ● Capable of massive cone excursions without poiling!

Cat. C-2024

**\$37.50**

### 125mm Mid range

A very smooth mid range speaker for the quality conscious. This speaker is very important to any system as it fills the gap left between the woofer & tweeter. Modern design has enclosed the rear of the speaker, therefore there is no need for a separate mid range enclosure in the cabinet. This unit can handle high power. Cat C-2028

**\$15.50**

### 64mm Tweeter

This superb tweeter features an aluminium dome directly over the voice coil so that the high frequencies can be dissipated more efficiently - especially those between 15kHz and 20kHz. A stiff curvilinear cone transducer handles lower frequencies down to 2kHz! Impedance is 8ohms with a high power handling capacity.

Cat. C-2032

**ONLY \$10.95**



### 57mm Mini Speaker

If it's performance you want, this 57mm mini speaker has it - in fact we found that it offered more performance than speakers up to 75mm in diameter! Nominal impedance of 8 ohms makes it ideal for many purposes.

Cat C-2222 **\$1.99**



### HUGE 30W 200mm Air Suspension Speaker with Aluminium Voice Coil



What a thumper! Powerful high compliance air suspension dual cone speaker with aluminium voice coil. Dual impedance of 4 and 8 ohms for almost any requirement. This is an amazingly powerful speaker but is also pleasant in response. Can be used in bookshelf systems or in PA systems. It is rated at 30 watts with a free air resonance of around 35Hz. This speaker is so compliant that you could see the cone move up to 13mm on heavy audio passages.

Cat C-2100

**AMAZING VALUE \$22.95**

### 25mm Dome Tweeter

A superb dome tweeter that can be used as a replacement in many systems. The dome principle allows for an extra wide dispersion of high frequencies right up to the 20kHz region. The power handling rating of the speaker is in the region of 20 watts maximum, which makes it ideal for use with the Playmaster speaker systems in place of the conventional tweeter supplied. The response of this unit is very smooth over the entire upper audio frequencies. Mounting is via four screws.

Cat. C-2004

**VALUE AT \$16.25**



**Rated at 40W Continuous**

### Piezo Ceramic Tweeter

A magnificent new addition to our range of quality speakers. This superb piezo-ceramic tweeter is an ideal replacement tweeter. Handles up to 40 watts continuous. Frequency response from 5kHz to 27kHz! Suits all 8 ohm systems. Can be used with or without a crossover. Add these to your system and you'll notice the difference!

Cat C-2005

**ONLY \$10.50**





# Microphones

professional quality —  
**DICK SMITH PRICE!**



## Uni-Directional Dynamic 500ohm Freq. response 50 — 15kHz

IDEAL FOR  
STUDIO USE

Top of the range professional quality microphone at a fantastic price. Famous name AOI brand compares with others you'd pay up to 3 times the price for. Solidly constructed to suit stage applications. Balanced output - compatible with all professional recording equipment, complete with professional "Cannon" type connectors. Uses dynamic insert for more prominent mid-range and high response. An excellent mic for vocal use. Cat C-1050

Specifications: ● 500 ohm impedance(balanced) ● Freq. response 50-15kHz ● Sensitivity -71 dB at 1 kHz ● 6 metre cable and mic holder supplied.

ONLY  
**\$59<sup>95</sup>**



## Uni-Directional Electret 600ohm Freq. response 20-18kHz

NEW FOR 83

IDEAL FOR  
STUDIO USE

Another professional quality microphone very similar to the above model (Cat. C-1050) except this one uses an electret insert for an extended low range. Excellent for musical instrument use. Cat. C-1055

Specifications: ● 600ohm impedance(balanced) ● Freq. response 20 — 18kHz ● Sensitivity -64 dB at 1kHz ● 6 metre cable, battery and mic holder supplied.

ONLY  
**\$59<sup>95</sup>**

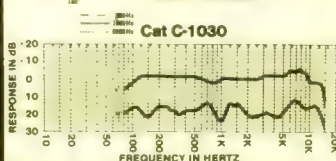
## Budget Cardioids for Recording or Stage



## Uni-Directional Dynamic

A dynamic cardioid microphone ruggedly constructed so it is ideal for bands and PA work. Because of its cardioid polar pattern it is less sensitive to rear noises. Its dual impedance increases its range of uses. Great for the hi-fi buff, audio freak and because of its low price it would also be ideal for schools, colleges etc.

Specifications: ● Impedance 600ohm & 50kohm ● Freq. response 80-15kHz ● Sensitivity -73dB(600ohm) & -54dB(50kohm) ● 6 meters of cable with phone plug fitted ● Microphone holder included.



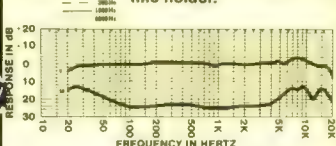
VALUE  
ONLY **\$34<sup>95</sup>**

NEW FOR 83

## Uni-Directional Electret

Similar to the model (Cat C-1030) above, this microphone is also suited to semi-professional and home recording systems. Uses an electret insert for an extended low range, just the thing for musical instrument use. Also has dual impedance Cat-1035

Specifications: ● Impedance 600ohm and 50kohm ● Freq. response 20-18kHz ● Sensitivity -68dB at 1kHz(600ohm), -52dB at 1kHz(50kohm) ● 6 metre cable, battery and mic holder.



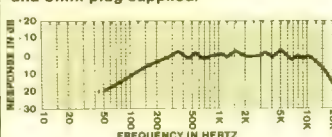
ONLY **\$34<sup>95</sup>**

## Omni Directional Dynamic



This budget priced general purpose dynamic microphone is ideal for recording purposes. It is high impedance to suit most tape recorders.

Cat C-1025  
Specifications: ● 50kohm impedance ● Freq. response 80-13kHz ● Sensitivity -54dB at 1kHz ● 6 metre cable, mic holder and 6mm plug supplied.



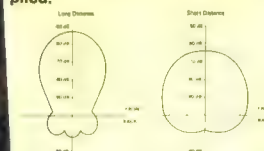
VALUE  
AT **\$19<sup>95</sup>**

High quality  
recording on movie  
& video cameras

## Uni-directional electret condenser

A compact uni-directional/ super cardioid microphone which is exceptional for video and movie use. It switches easily from super cardioid to standard uni-directional. The super directional response pattern enables individual sound sources to be easily isolated from extraneous background sounds. Also ideal for naturalists, surveillance work, stage plays, etc. Cat C-1069.

Specifications: ● 2.3kohm impedance (super-cardioid), 520 ohm impedance (uni-directional) ● Freq. response 80-12kHz ● Sensitivity -56dB at 1kHz (super-cardioid), -66 dB at 1kHz (uni-directional) ● Coiled cable, battery, windscreen and mic holder supplied.



AMAZING VALUE

IMPROVED MODEL  
**\$76<sup>50</sup>**

NEW FOR 83

## Top Value FM Wireless Microphones

These two superb omni-directional electret FM wireless microphones both put out an FM signal that can be picked up by any Hi-Fi system FM tuner or ordinary FM radio. The mind boggles with the possible uses



## Tie Clasp

Small enough to completely conceal, this model comes complete with a clip, battery and a wire antenna. Cat C-1073

**\$26<sup>50</sup>**

## Handheld

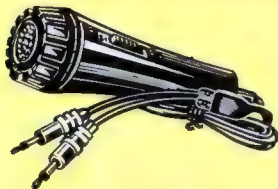
Elegant styling and powerful performance make this mic excellent value. Telescopic antenna supplied. Cat C-1070



VALUE AT  
**\$24<sup>50</sup>**



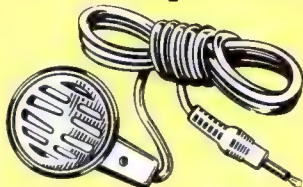
## Dynamic Cassette Mic



The perfect replacement for your cassette recorder. Can also be used with cassette recorders having a separate microphone as well as the built-in microphone. The cassette must have a low impedance input (99% of those on the market) and the unit comes complete with main plug and remote switching plug. This unit will save your cassette recorder from becoming obsolete! Cat C-1015

**ONLY \$4<sup>95</sup>**

## BUDGET Lapel Microphone

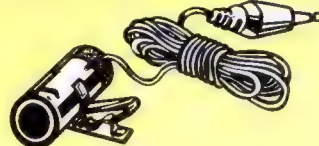


### CRYSTAL INSERT

Save a bundle with the very popular high impedance microphone which has a crystal insert. It is ideal for use with valve amplifiers. Chrome finish, looks smart and the price is so low! Experimenters can use this microphone as it is very rugged. Cat C-1010

**BARGAIN AT \$2<sup>50</sup>**

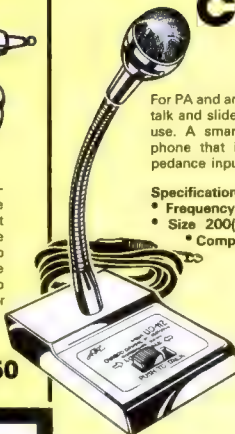
## Tie clasp Electret



Just like the microphones used by interviewers when they want the mic to be inconspicuous, but with this one you also get fantastic pick up and perfect clarity. The microphone comes complete with tie-clasp and 6 metres of cord, terminated with a phone plug. Being a low impedance device it is also ideal for use with your cassette recorder for recording the family or lecture notes, etc. Cat C-1060

**AMAZING VALUE \$12<sup>50</sup>**

## Desk Top Cardioid



For PA and amateur use. It has a push to talk and slide to lock switch for ease of use. A smart modern looking microphone that is ideal for any high impedance input. Cat C-1075

Specifications: \* Impedance 50k ohms  
\* Frequency response 60 - 15000Hz  
\* Size 200(h) x 75(w) x 110(d)mm  
\* Complete with 3 metres of cable with phone plug fitted.

**ONLY \$38<sup>00</sup>**

## Quality Microphone Accessories

### Mic line Transformer



Just plug-in! Input impedance is high, 50k ohms and the output is low, 100 - 250 ohms. Fully shielded metal construction, fitted with phone jack and socket. Cat M-0701

**\$7<sup>80</sup>**

### Stand and Boom Clip

Powerful springs enable this clip to hold virtually any sized microphone securely and yet releasing is a simple two finger operation. Has standard microphone and boom fitting threads. Cat C-1270

**\$4<sup>95</sup>**

### Gooseneck

Allows the microphone to be 'bent' into its required operating position. Can be used with floor stand and boom. Cat C-1226

**\$11<sup>50</sup>**

### NEW FOR 83

### Line Speaker Transformer

Ideal for PA applications. Multitapped for use with 100V or 70V lines. Cat M-1100

**GREAT VALUE AT \$3<sup>50</sup>**

### Desk Stand

Black heavy base with chromed 10cm tube with standard microphone thread. Cat C-1240

**BARGAIN AT \$11<sup>50</sup>**

### Electret Insert

Making or repairing a microphone? This unit will fit most makes and has a high sensitivity with omnidirectional characteristics. Connection data supplied. Weight only 1.5 grams! Cat C-1160

**\$2<sup>50</sup>**

### Floor Stand and Boom

This professional floor stand and boom is a very advanced design. It converts easily from a regular mic stand to a boom stand. This unit is lightweight, portable, collapsible and stable. Comes complete with universal mic holder which adapts to virtually any sized mic. Cat C-1200

**VALUE AT \$49<sup>95</sup>**

### Mobile Mic Mounting Clips

#### MAGNETIC TYPE

A dangling, bouncing microphone can be really dangerous in traffic. Cure the problem with this clip. It attaches to the rear of most hand-held microphones, and holds the microphone securely to any handy ferrous surface by means of a strong magnet: it won't let go! Cat C-1260



**\$1<sup>25</sup>**

#### SCREW-IN TYPE

And a little simpler: this clip can be screwed to any convenient location and the mic is held securely by a spring in the clip. The clip comes complete with mounting screws - ideal for cars where there is more plastic than steel on the dashboard! Cat C-1262



**80¢**

### Mic Mixer & Pre-Amp



What a performer! This solid state microphone mixer is used to feed from 1 to 4 high impedance sources such as microphone, tuner, turntable, recorders, etc. into the high impedance output for connection to a recorder or amplifier. Cat F-2272

**BARGAIN AT \$16<sup>95</sup>**

### Inductive Pick-up

Complete with lead and plug



A great accessory which can be fitted to your intercom or any piece of equipment that has low output sound levels. Fitting is achieved via a suction pad. Record directly onto tape or feed into a more powerful amplifier. Comes complete with a 3.5mm plug and 1 metre of lead. Just attach and you are ready to record! Note: Current Telecom regulations do not permit this unit to be attached to a telephone. Cat C-7300

**ONLY \$1<sup>80</sup>**

**DIRECT IMPORT YOU SAVE!**



**AMAZINGLY LOW PRICE**



## Economical AC/DC Public Address System



### PA Amp

Whether your need is for a fixed PA amplifier such as in a church hall or civic centre OR for use in political rallies and fetes etc. then this is the amplifier for you! It features mixable inputs for two microphones plus an auxiliary input.

Specifications:  
Output power 15 Watts RMS  
Input and sensitivity Mic 1.3mV/600 ohms  
Mic 2.3mV/50k ohms  
Output impedance 4.8 and 16ohms, 25 and 70 volts line outputs  
Controls Mic 1 Level control  
Mic 2 Level control  
Tone control  
Operating voltage AC 240V or 12V DC positive or negative earth  
Dimensions 241(w) x 85(h) x 185(d) mm  
Weight 3.8 kg without mounting bracket

Cat F-2034

**FANTASTIC VALUE AT \$99<sup>00</sup>**

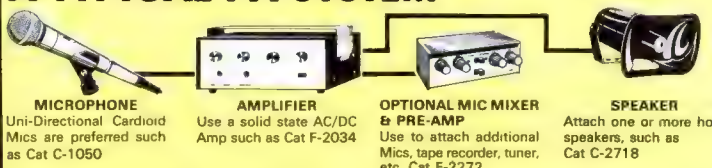
## Rectangular Reflex Horn



This is a superior quality horn speaker that incorporates rubber edge clamping to eliminate resonances. Rated at 15 watts, 8 ohms impedance and a frequency response of 300 - 5kHz. The dimensions of the horn opening are 127 x 200mm. Cat C-2718

**ONLY \$26<sup>50</sup>**

## A TYPICAL PA SYSTEM



Cat C-1089  
MICROPHONE AS USED ON A VCR CAMERA (SEE OPPOSITE)



# Car Products

You can save a fortune – and end up with a far better sound system – by installing your own. Why pay manufacturer's high 'option' prices for unknown quality when you can have superb systems from the Dick Smith range. And even if your car already has a sound system fitted, you're sure to be able to dramatically improve it with Dick Smith quality car sound accessories. Choose anything from a new set of speakers – an amplifier or equaliser (or both) right through to a whole new system.

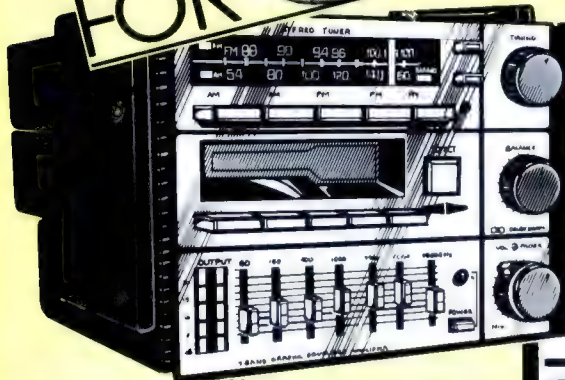
Your ears will say 'thank you'!



The Alexander Rotary Mazda RX-7, sponsored by Dick Smith Electronics in major races, including the James Hardie 1000 at Mt Panorama, Bathurst. Phil Alexander, driving the peripheral ported rotary engine Mazda, came 10th outright in 1982 at Bathurst.

UHF CB from Dick Smith is used exclusively by Phil Alexander for race-track communications.

**NEW FOR '83**



## the amazing DICK SMITH Three-in-One Stereo System

**HUGE  
60W!**

The most fantastic value auto hi fi system around! Superb for virtually all cars, trucks, boats – magnificent in 4WD's.

### Here's what you get:

- ★ AM/FM stereo push button tuner
- ★ Auto reverse stereo cassette deck
- ★ 30 watt per channel stereo amplifier with 7 band graphic equaliser PLUS LED level meters for each channel, front rear fader and volume control.
- ★ And deluxe mounting brackets which hold the three units together in one of the best looking combinations we've seen. And there's an exclusive quick-release mechanism for easy removal from your vehicle for security.

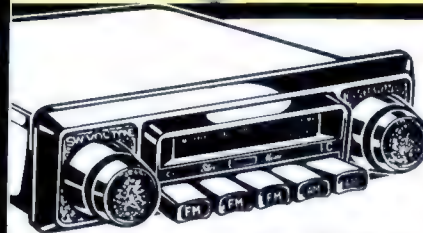
Yes – now you can really beat the road and engine noise. Ideal for diesel engine vehicles and others with high background noise level.

**Specifications:** Output power 30W max per channel – Amp frequency response 10Hz to 40kHz – Lockable fast forward and rewind – Dolby noise reduction system – AM/FM stereo tuner

Cat A-6500

**Amazing  
Value**

**ONLY \$299**



**ONLY \$69<sup>00</sup>**

## Push Button AM/FM DICK SMITH Stereo Radio

Now that FM is really here, why not replace that old car radio with this superb new model, offering both AM and STEREO FM! Pushbutton for instant station selection (important when driving) and designed to fit into standard dash cut-out (can also be mounted under dash – size 158(w) x 120(d) x 48(h)). Features 7 watts max output, LED stereo indicator and FM mono/stereo switch for poor reception areas. 12V DC, negative earth. Cat A-5985



**ONLY \$79<sup>00</sup>**

**1000's  
SOLD!**

## Auto Reverse Stereo Cassette

There are huge advantages in putting a separate cassette in your car – for example, you can still listen to the car radio while tapes are rewinding, etc. And this magnificent stereo cassette offers you the advantage of auto reverse – no longer need you turn the tape over while driving!

### Check out these magnificent features:

Extremely simplified mechanism for maximum reliability – no rubber belt for the reel drive to wear out! – Fast forward and rewind functions lock on, if required, for safer driving – Channel selector push switch – Ideal for any car, boat or plane with 12V DC negative earth system.

### Specifications:

Output Impedance suited to 4 or 8 ohm speakers – Frequency Response: 33-10,000Hz – Power Output 8W/channel max – Wow & Flutter less than 0.2% – S/N ratio better than 45dB – Dimensions 48(h) x 120(w) x 166(d)mm. Cat A-6486



**ONLY \$99<sup>50</sup>**

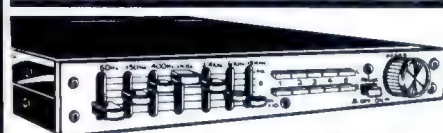
## Two in One! FM/AM Radio/Cassette

Reliability, good looks and quality – these are just some of the reasons for selecting this FM/AM radio cassette stereo player.

**Features include:** Full Auto Reverse Mechanism – Fast forward, rewind with lock and manual, program change push switch, push eject knob – FM stereo and tape run indicators – Compact DIN size – Mono/Stereo and Local/DX switching

**Specifications:** Output power, 8W maximum per channel – Dimensions: 42(h) x 170(w) x 135(d)mm – Adjustable Shaft spaces: 130/143/138/152mm – Weight: 1.45kg

Cat A-6482



**ONLY \$75<sup>00</sup>**

## Stylish Slimline Amplifier/Equaliser

This attractive slimline Graphic Equaliser/Booster will enhance the sound of your car stereo. It is the most compact and slimmest equaliser/booster of its kind – and it can amplify up to 25 watts per channel!

The 7 frequency bands can be adjusted independently and each degree of adjustment can be confirmed visually to plus or minus 12dB. Balanced sound can be produced through four speakers by adjusting the fader control and to indicate the power output, this unit has LED level meters fitted for both left and right channels.

Cat A-6666



## Amazing sound quality The DICK SMITH AM/FM Cassette Radio

Here it is - the most exciting sound system your car could ever want! Features a massive 20W/channel output complete with a 5 band deluxe graphic equalizer to get the sound the way YOU want it! PLUS there's a superb quality AM/FM receiver with DIGITAL frequency readout AND clock! What more could you possibly want?

Cat A-6488

- Full auto reverse tape cassette
- Complete with fader control for front/rear speaker selection
- Fits in standard dash-board cut-out

### SPECIFICATIONS:

**Radio:** AM Sensitivity: 17dB  
FM Sensitivity: 13dB  
S/N ratio: more than 50dB

### Equalizer:

5 band, cut or boost 7dB  
Steps 60Hz, 250Hz, 1kHz, 3.5kHz & 10kHz

**Tape:**  
4 track auto reverse  
Frequency Response: 50-8000Hz  
Wow/Flutter: 0.3% RMS

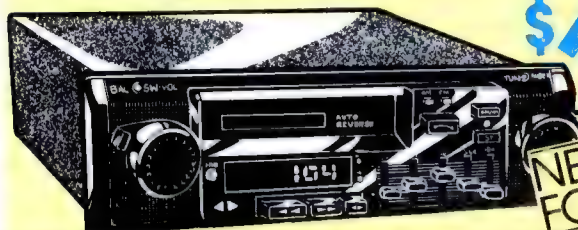
### Amplifier:

Output power: 20W x 2 maximum  
Speaker Impedance: 4 ohms  
Speakers: two or four

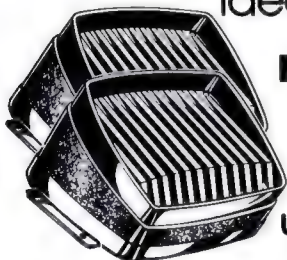
Amazing Value at

**\$199**

NEW FOR 83



## Budget car stereo speakers - ideal for the 2nd car! rear shelf mount



Mount them anywhere - on the rear parcel shelf, from the roof... you name it! Suits just about all hi-fi systems, with large 90 gram magnets they're rated at 4 ohms/8 watts maximum. Also come apart for mounting under panels.

Cat A-6980

unbeatable value **\$16.95** PAIR

## Flush mount

Standard 130mm diameter speakers with soft padded grilles, as used in most car stereo systems. Suit standard large cut-out (e.g. below rear parcel shelf). 10 watts maximum, 5 watts nominal, 4 ohms. Extra large 140 gram magnet.

Cat A-6985



AT ONLY **\$19.95** pair



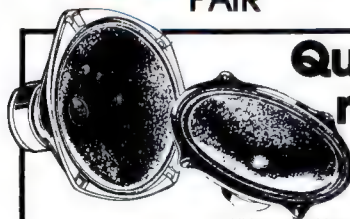
## Super thin flush mount Economy speakers

NEW FOR 83

Super thin type for mounting in door or kick panels, etc. Heavy wire mesh for maximum protection. 4 ohms impedance, 100 mm size suits standard cut-out found in many Japanese cars. Handles up to 15 watts. Complete with mounting hardware.

Cat A-7050

**\$24.95** PAIR



## Quality speaker replacements

Ideal for service centres, radio installers - even the handyman. As found in most major brands - pick the type you require. All have dual impedance - 4 and 8 ohms - suits any system.

230 x 150mm oval (Ideal for wagons!)	Cat A-7140	\$10.00	EACH
130mm round (The most popular of all)	Cat A-7145	\$6.85	EACH
50 x 100mm oval (With Ferrite magnet)	Cat A-7130	\$5.95	EACH
180 x 130mm oval (popular oval type)	Cat A-7135	\$7.85	EACH

## Team up with these superb speakers



## 50 Watt 3 way speaker system

Stereo sound in your car is unbeatable and these car stereo speakers not only sound great but look great.

The Dick Smith XS-5 is a 3-way, 4-speaker system and is capable of handling up to 50W for those high powered systems. They are incredibly easy to install - with the quick connect wires, no soldering or tools are required. They also come with detachable brackets so they can be mounted horizontally or vertically.

- Top quality sound
- Latest attractive gun-metal finish
- No messy wiring
- Blends in with any decor
- Suit most in-car systems



**SPECIFICATIONS:** Speaker units - 4 inch high compliance woofer, 2 1/2 inch cone squawker, 2 inch twin mini dome tweeter. Cabinet - sealed enclosure, Impedance 4 ohms, nominal power 50 watts each, maximum power 100 watts each.

Cat A-7083

AND ONLY **\$99.50** compare our value  
PAIR



## Quality sound from these Co-axial speakers

Coaxial speakers have the excellent bass response of dual cone types PLUS a fantastic top end range achieved through a tweeter that is suspended across the main cone. They have a large 280 gram magnet and are rated at 4 ohms. They will suit most in-car systems. Hardware, mounting template and deluxe grille are included in the price.

Cat A-7000

**\$42.00** PAIR

## Get the most from your system with



VALUE AT **\$49.95**

## The Dick Smith Stereo booster

Don't let road noise beat your car stereo - fit a booster! This superb model will boost the output of your cassette, radio etc., to a massive 30 watts per channel! And it won't detract from your car stereo's performance or affect it in any way. Easily connected into speaker lines, operates from 12V. Fantastic for diesels and other 4WD's and 'soft top' cars.

Cat A-8660

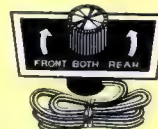


## STEREO FADER CONTROL

If you have 4 speakers in your car then you need our stereo fader. Control your sound so that it comes from either the front pair or the rear pair or all four speakers at once.

Cat A-7832

**\$6.35**



## HIGH POWERED SPEAKER FADER

This amazing fader will handle up to 25 watts of power and comes complete with a fascia mounting plate & cable. No longer do you need to worry about your passenger's hearing, just fade the sound down for them whilst keeping it high for yourself! Stereo - suits two pairs of speakers.

Cat A-7834

**\$11.15**



# Car Products

SAVE A FORTUNE  
ON TUNE UPS!

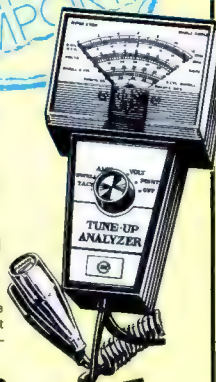
## ... with the DICK SMITH Engine Analyser

Designed to fit in the palm of your hand for easy use. It has a multi-coloured scale so that when you are making a particular measurement you will soon know what it is at a glance. Why pay out hard earned money for jobs that you can do yourself — for example with this unit you can measure the following:

- LO VOLTS ● HI VOLTS ● POINTS
- HI TACH ● LO TACH ● DWELL

That is most of the electrical testing needed to keep your car in top condition. The unit comes complete with heavy duty leads and clips and can be used on all 4, 6, and 8 cylinder cars. **Cat A-8514**

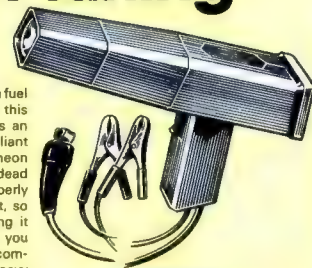
ALL FOR **\$27<sup>50</sup>**



1,000's  
SOLD

## value plus Xenon tuning light

You can actually cut down on fuel and maintenance costs with this timing light! Because it has an XENON flash, you get a brilliant light that makes the old neon type of light look like a dead match! To tune your car properly you will need a timing light, so why waste money by having it done "professionally" when you can do-it-yourself. It comes complete with three leads, heavy duty clips and FULL INSTRUCTIONS. **Cat A-8508**



ONLY  
**\$29<sup>95</sup>**

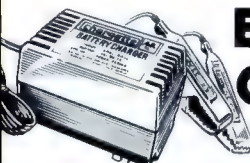


NEW  
FOR

## 12V Digital Car Clock

Fantastic for either under-dash or in-dash mounting. Brackets supplied for under-dash, pop-in bezel for in-dash. Really tiny — measures just 65 x 35 x 25mm, but has huge 8mm digits for maximum visibility. Display can be switched on and off via ignition key. Complete with supply line filter to eliminate noise and voltage drop problems. **Cat Y-1058**

AMAZING  
VALUE **\$19<sup>95</sup>**



Wow! A compact battery charger that just plugs into the mains socket, ready to charge your car battery! 1 amp output — will charge a dead battery in 48 hours. Double insulated with overload protection. **VALUE Cat M-9802**

ONLY **\$24<sup>90</sup>**

## Standard Speaker Grilles

If you want a quality grille for your car speakers or even bulkhead mounted speakers on your boat, we have them. Made of a high heat resistant plastic, the 130mm grille has a metal rim for ease of fit. Quality at a low price.

- 230 x 150mm **Cat A-7815 \$2.25**
- 180 x 130mm **Cat A-7816 \$2.25**
- 130mm round **Cat A-7818 \$2.80**

FANTASTIC  
VALUE



## Gutter Grip Antenna **\$10<sup>25</sup>**

Twin telescopic rods of about 950mm each pull in those weak signals. Attaches to the gutter of your car very easily. Comes with about 1.9 metres of lead and plug. Very popular antenna in Europe. **Cat A-7320**

## AM/FM Mini Rubber

This is a very flexible rubber antenna that is ideal for both AM and FM. It is only 390mm high. This antenna will not rust or break. **Cat A-7345 \$10<sup>95</sup>**

## Lock Down Antenna

The ever popular lock down, 5 section telescopic antenna. Comes with key. Underhang is 330mm. **Cat A-7300 \$8<sup>60</sup>**

## Electric Antenna

A dash mounted switch enables you to raise or lower this antenna from inside the car. Works on both 12V DC negative or positive earth. Requires 320mm clearance below cowl. Shipping clutch ensures no burn outs. **Cat A-7360 \$24<sup>00</sup>**

## More Antennae Universal Top Cowl

Can be mounted virtually anywhere — requires 25.4mm mounting hole. Three section telescopic with lead and plug. **Cat A-7340 \$6<sup>60</sup>**

## Deluxe Roof Antenna

Just like those sporty Italian cars — you too can have a roof mounted antenna. Has spring loaded base and adjustable length plus you can angle the antenna to suit your requirements. Great for FM. **Cat A-7306 \$9<sup>95</sup>**

## And Yet More

- NCP314 Mazda Pillar **Cat A-7325 \$8<sup>60</sup>**
- Spring Base Top Cowl **Cat A-7335 \$9<sup>95</sup>**

**4 metre Car Antenna Extension Lead**  
Fully compensated (low signal loss) 4 metre lead. Complete with plug on one end and socket on the other. Ideal for when your new antenna has a lead that is too short! For rear mounted antennas. **Cat A-7452 \$4<sup>30</sup>**

**1 metre Car Antenna Extension Lead**  
Exactly the same as the above lead only this one is 1 metre in length. Ideal for short runs. **Cat A-7450 \$3<sup>25</sup>**

## Noise Suppressors

**Inline Distributor Suppressor**  
Connect anywhere in lead to eliminate or reduce distributor noise. Simply cut centre (coil) distributor wire and screw cut ends into suppressor. **Cat A-7904 \$5<sup>50</sup>**

**Spark Plug Noise Suppressor**  
A spark plug cap with inbuilt 50k ohm resistor. Connect between plug lead and plug after cutting old plug cap off. **Cat A-7908 \$1<sup>00</sup>**

**Generator Noise Suppressor**  
Heavy duty 0.5uF-100 volt capacitor easily mounted directly on to the generator or coil. Simple to fit with only a screwdriver. **Cat A-7902 80¢**

**Alternator Noise Suppressor**  
A capacitor type suppressor with three leads — one to earth and the other two between your alternator and car cassette, radio or CB. Reduces or eliminates the whine caused by the alternator. **Cat A-7924 \$2<sup>80</sup>**

**Deluxe Alternator Suppressor**  
A coil type filter wound on a high density ferrite core. This will give excellent results especially with those very tenacious alternator whines. **Cat A-7926 \$11<sup>95</sup>**

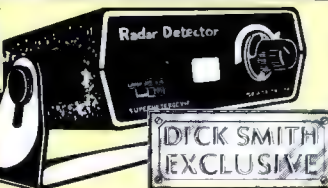
**Coax Alternator Suppressor**  
Heavy duty 0.5uF 50 volt coaxial capacitor for extreme cases of alternator whine. Connect in series with the output lead of the alternator and earth the case. Will handle 60 amps. **Cat A-7928 \$5<sup>50</sup>**

**SPST Glow Switch**  
A single pole single throw automotive switch with illuminated toggle. Rated at 12V DC @ 16 amps. Ideal for night use as the glow from the switch enables you to see where it is! **Cat S-1214 \$2<sup>95</sup>**

**Horn Relay**  
Extremely heavy duty single pole contacts rated at 20 amps @ 12V. Can be used for any purpose that requires a heavy duty relay i.e. burglar alarms. **Cat S-7302 \$4<sup>20</sup>**

**Double Headlamp Relay**  
Each single pole contact is rated at 30 amps (wire in parallel to switch 60 amps). Ideal for high power Q.I. driving lights. **Cat S-7304 \$11<sup>50</sup>**

NEW  
FOR



## THE X.K. RADAR DETECTOR ... Tiny size — but what a performer!!

Traffic fines are costly these days so it pays to keep within the speed limit with the all new X.K. Radar Detector. Receives both "X" and "K" band radar, so it's usable in all areas of Australia\* with all radar types currently in use — CW, pulse, stationary, moving, and gun type. And with the all-new superheterodyne circuit you get extra-long range and razor sharp selectivity to minimise false triggering. This superb unit features visual warning plus an audible warning. The audible warning is very handy when you have to keep your eyes on the road. Simply plug the detector into your cigarette lighter socket and you are ready to go — it's as easy as that! Exclusive 3-way mounting — choose dashboard, windshield, or visor — and all hardware is included!

\* Not legal to use in Tasmania

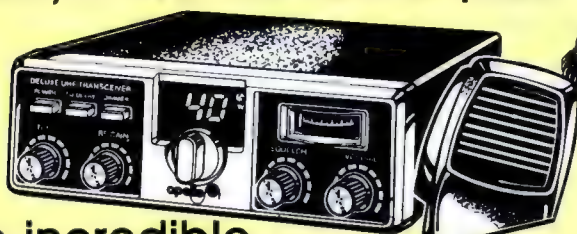
**Cat A-8502**

**\$225**



# CB Radio

Now, a UHF CB under \$400!



The incredible  
apollo UHF

UHF radio offers crystal clear transmission for miles without interference from static, hiss and annoying stirrers. This unit excels in either mobile or base installation making it suitable for small businesses, professionals or rural application. Full 40 channel operation with delayed action squelch for flutter free reception. The RF gain control lets you increase faint signals and decrease strong local signals. You get even better reception with the tone control provided and a dimmer switch dims the green LED channel indicator for night driving. A truly amazing radio for the cost conscious person.

**SPECIFICATIONS:** Frequency range - 476.425 to 477.400MHz DC Power source - 11 - 16 volts (13.8V nominal) RF Output power - 5 watts Receiver sensitivity - 12dB SINAD 0.3uV Selectivity - AT 25kHz - 60dB Spurious and Image Rejection - 60dB Threshold squelch - less than 1dB sensitivity. Noise quietening level. Tight squelch sensitivity. Less than 2dB. Cat D-1802

A WHOLE NEW  
WORLD OF  
COMMUNICATIONS

ONLY

**\$389**



DICK SMITH  
Ultra Mini  
40 Channel  
CB

NEW FOR

ONLY  
**\$89<sup>50</sup>**

Have a look at this superb new CB from Dick Smith. It's about the smallest we've ever seen for a full 40 channel set: just 106mm wide, 35mm high and 173mm deep! And it has full legal output power, a huge LED digital channel readout PLUS LED S-meter and power indicator! Built-in ANL circuitry and extremely simple controls make this the ideal CB for everyone.

Maximum legal power output • Full 40 legal channels • DOC approval pending.  
Cat D-1443

Amazing Value for our  
New Zealand customers

Famous  
National  
Mobile CB



With unique up/down scanning!

WAS **\$159**

**\$139**

Superb National transceiver, tested and approved by the New Zealand Post Office for use on the New Zealand CB band. Great for mobile two way communications in cars, trucks etc.

Covers full 26.425 - 26.750MHz CB band • 2 watts maximum power output • Digital channel readout • Delta tune plus noise limiter • Large, bright signal/power meter • complete comprehensive instruction manual  
Cat D-1433

FOR THE 1000's OF KIWIS WHO VISIT AUSTRALIA here's a CB you can take home with you, and because Aust's tax & duty are much less, it's LOTS CHEAPER THAN BACK HOME.

APPROVED BY NZ.P.O.  
(App. No. RTA 23/1341)

DIRECT  
IMPORT

UNBEATABLE PRICES  
ON 40 CHANNEL!

THE DICK SMITH  
HORNET II  
40Ch AM/SSB



unbeatable  
value  
for only

**\$239<sup>50</sup>**

40 CH AM  
DELUXE  
TE 4000

This excellent 4W CB Transceiver features a LED readout with dimmer built-in, noise blanker, SWR meter, automatic noise blanker. Other features incorporated in the set include the Delta Tune switch to improve reception, PA system, squelch for clear stand-by operation and RF gain control to increase reception sensitivity.

**SPECIFICATIONS:** Frequency 26.965 to 27.405MHz Frequency control - PLL (Phase Locked Loop) synthesiser Mode of Operation - AM Frequency Tolerance - ± .005% Audio Output - More than 3W at 8 ohms, 10% THD  
Cat D-1444

DOC Approval No. 249195



WAS  
**\$179**  
NOW

**\$125**

GREAT RANGE OF **\$9<sup>95</sup>**  
HANDHELDS FROM

1 WATT  
3 CHAN

Small enough to  
throw in your  
rucksack and it  
could save your  
life!

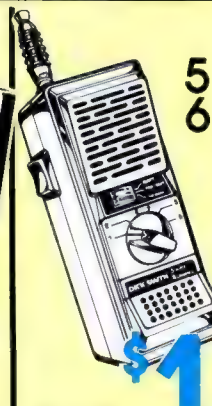
**\$55**



5 WATT  
6 CHAN

- Full power
- Up to 6 channels
- Emergency frequency supplied

**\$125**



Just the thing for bushwalkers, hikers etc. - ideal for emergency communications and small enough to throw into the backpack. Features one channel fitted with 27.620MHz, with two other channels available for different frequencies.  
Cat D-1102

FOR CRYSTALS SEE PAGE 58

Intended mainly for marine use, but also ideal for land use with its huge 5 watts input. And there are 6 channels available in this model (one channel already fitted with 27.88MHz). And with its full range of input/output connections, you can easily use external supply (car/boat or AC adaptor) and an external antenna and have as good a transceiver as the 'mobile' CB's etc. (Approved for marine use - DOC approval no. 242M161) Cat D-1123



The Pocket Com II  
Walkie Talkie

NO LICENCE  
REQUIRED

This is THE transceiver for the aspiring James Bond or Sloanes in our community. Full 2-way transmission and a size that fits secretly into your pocket. A great gift for any child. Also ideal for the more serious mother who wants to know what Johnny is doing in the back yard; for construction workers etc. Buy a few and start a 'spy ring'!  
THIS TRANSCIVER COMPLIES WITH SPECIFICATION RFM E001 OF THE AUSTRALIAN DEPARTMENT OF COMMUNICATIONS AND DOES NOT REQUIRE A LICENCE TO OPERATE.

Cat D-1101

VALUE  
**\$9<sup>95</sup>**



# CB Radio

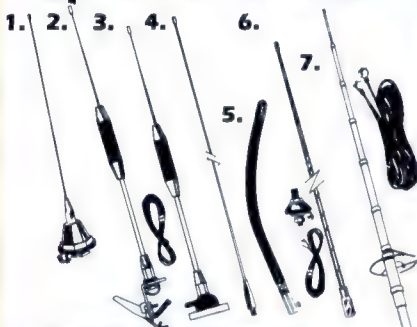
## Antenna Mount Roof Rack



Here is the ideal unit for the person who doesn't want to drill a hole in the vehicle roof and doesn't want the slightly directional effect sometimes obtained from gutter or bumper mounting. This fully plated bar mounts easily on virtually any car roof and will withstand high speeds and rough roads. Mounting plate with 16mm hole takes most available antennas and mounts.  
Cat D-4520

**ONLY \$10<sup>50</sup>**

## Top value antennas



### 1. Mobile UHF Antenna

Low cost precision made UHF CB antenna, complete with base and cable connecting lugs. All you do is mount the base in the centre of your car roof (or use the roof rack shown on this page if you don't want to drill holes).  
Cat D-4023.....\$9.95

### 2. 27MHz Gutter Grip Antenna

Simply clips onto the rain gutter of any vehicle. Features no hole installation and can be installed or removed without tools. Antenna has centre loading coil to increase effective antenna length whilst keeping it compact. Ample coax supplied, complete with PL259 plug.  
Cat D-4411.....\$25.00

### 3. 27MHz Magnet base antenna

Centre loaded stainless steel construction with heavy magnetic base. 16 feet of coax supplied, complete with PL259 plug. Ideal for 'instant' mobile use.  
Cat D-4412.....\$25.00

### 4. 27MHz 1/4 wave whips

Your choice of stainless steel or fibreglass. Each is approx. 2.75m long. Ideal for marine or CB. Easy SWR adjustment. Mounts available to suit your requirements.  
Stainless Steel Cat D-4415.....\$17.95  
Fibreglass Cat D-4416.....\$22.50

### 5. 'Rubber Duck' Mini Helical

Indestructible and very flexible — perfect for handheld sets. Only 300mm long and is attached over the normal telescopic antenna when it is retracted and secured by a thumb screw. Great replacement for damaged antennas!  
Cat D-4629.....\$9.95

### 6. 27MHz Helical CB Antenna

The largest selling mobile CB antenna in Australia. 1.5m long, very flexible, comes complete with PL259 plug. Nothing else to buy!  
Antenna & Base Cat D-4076.....\$29.00  
Antenna only Cat D-4074.....\$24.95

### 7. 5/8 Wave Vertical Base Antenna

A brand new, very high quality (US made) 27MHz base antenna — and because its a 5/8 wavelength it has an amazing 4.2dB gain! Very portable, very easy to erect and dismantle — but very strong (wind tested to over 130km/h). Used by CBers, surf life saving clubs, boating clubs, etc. Also great for amateurs (easily adapted to 28MHz). Complete with 15m co-ax with PL-259 plug, and full instructions. Cat D-4429.....\$69.00

**NEW FOR**

### 27MHz Whip Antenna

One of our top selling CB whip antennas. Only 1 metre long yet its performance equals many larger whips but with out the problems, eg overhangs, excessive flex from wind or movement, etc. The ideal mobile antenna.  
Cat D-4072

**\$14<sup>95</sup>**



## Swivel Ball Mount

Heavily chrome plated. Slanted for greater strength. Ideal for boats, vehicles, trucks etc.  
Cat D-4502

**\$9<sup>95</sup>**

## Steel Spring

Plated steel spring. Designed to take up to 3 metre whip. Will bend through 90° without breaking.  
Cat D-4503

**\$10<sup>95</sup>**

## Antenna Adaptor

USA 9.5mm x 24 tpi male thread to Australian female socket. Used for connecting USA 9.5mm x 24 tpi base with Scalar or similar antenna.  
Cat D-4505

**\$1<sup>89</sup>**

## Antenna Adaptor

The standard Australian Female thread to 9.5mm x 24 tpi female, used for connecting Scalar or similar base to any of our antenna or accessories with 9.5mm x 24 tpi mounting.  
Cat D-4504

**\$1<sup>99</sup>**

## Antenna Layover

Heavy duty unit allows antenna to be left in three separate positions, vertical, horizontal or angled. Positions are easily obtained at the push of a button. Will not layover if hit.  
Cat D-4506

**\$9<sup>50</sup>**

## Quick Disconnect

Enables you to move your antenna from its mount with an easy press and twist. Saves your antenna being stolen.  
Cat D-4508

**\$7<sup>90</sup>**

## Universal Stud Mount

Accepts 9.5mm x 24 tpi thread and comes with mounting plate and ground lug. Plated steel and nylon insulated bushing. Mount requires 12mm hole.  
Cat D-4510

**\$2<sup>95</sup>**

## Universal Mirror Mount

Clamps to your roof rack or mirror as a support for standard antennas. It has a 12mm hole for mounting the stud mount, D-4510, less centre plate. Made of plated steel. Cat D-4512

**\$6<sup>95</sup>**

## Weatherproof Mount

Weatherproof base designed for general purpose use. The load is spread by a large washer. The neoprene and nylon washer construction ensures weatherproofing. Use with W-1372 lead. Requires 16mm hole.  
Cat D-4056

**\$4<sup>95</sup>**

## Gutter Grip

A sturdy, easy to fit unit for your car. Made of non-corrosive alloy. Use with stud mount D-4510. Cat D-5100

**\$9<sup>95</sup>**

## Hi Power Dummy Loads

These resistors are high tolerance, high power devices with virtually no inductance. Large surface area to dissipate large amounts of power. Normally found in quality power meters selling for over \$100. The ratings are continuous.  
Cat D-7015

50watt.....\$14.95  
Cat D-7010

100watt.....\$29.50

## Shinwa Filter - The 'Big Gun'



Stubborn case of TVI and BCI? Try the 'Big Gun'. Shinwa filter has helped thousands of customers. Handles up to 500 watts. Cut off is around 30MHz, insertion loss is less than 1dB and maximum attenuation is around 50dB! Ideal for amateurs and CBers. Cat D-7080

**\$23<sup>50</sup>**

## Dummy Load Lights Up!

It has a built in lamp which shows an AM carrier when the microphone button is keyed, light intensity varies with modulation. Standard PL-259 plug. Cat D-7024

**\$3<sup>90</sup>**

## Static/High Voltage Arrestor

The arrestor connects between antenna lead-in and receiver/transmitter and grounds excessive potentials. One PL-259 plug and SO-239 socket, and large grounding screw.  
Cat D-7152

**\$4<sup>20</sup>**

## TVI Troubles? LO-PASS Filter

All the TVI protection you need in most cases. Connects into antenna lead close to the transceiver via PL259 plugs. 50 ohm, low insertion loss. 30MHz cut off frequency. Cat D-7082

**\$6<sup>50</sup>**

## VALUE

## TV Set HI-PASS Filter

Actually attaches to unit being affected by CB or amateur radio. Will attenuate frequencies below 50MHz making it ideal for TV, FM sets. Simple to connect between TV set or FM tuner antenna terminals. Cat D-7084

**\$2<sup>75</sup>**

## Antenna Matcher

Connected in antenna lead, can be adjusted to virtually eliminate all mismatch between antenna and transmitter. Handles 100 watts, 50ohm impedance, PL-259 connectors.  
Cat D-5512

**\$15<sup>99</sup>**



## 3-Way Antenna Switch

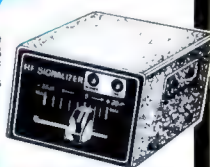
If you have more than one antenna or use more than one rig then this switch will save you swapping by hand. Handles 150 watts at 30MHz. Ideal for base stations or mobile. Cat D-5206

**\$9<sup>50</sup>**

## RF Signalizer

Inserts in antenna lead to give from -25dB to zero to +20dB gain. The gain lifts signals out of the mud while the cut stops them bending your needle. Switches automatically on transmit. Needs 12VDC 35mA.  
Cat D-3828

**\$47<sup>50</sup>**



## Midland Spares

### DC Power Leads:

DC Power lead for Midland transceivers (suitable for a huge range of other transceivers with 3 pin plug). Cat D-9001

DC power lead for Dick Smith transceivers or other transceivers with 2 pin plug. Cat D-9006

**\$2<sup>95</sup> each**



### PLL IC

Replacement Phase-lock-loop IC, PLL02A Cat D-9003

**\$7<sup>95</sup>**



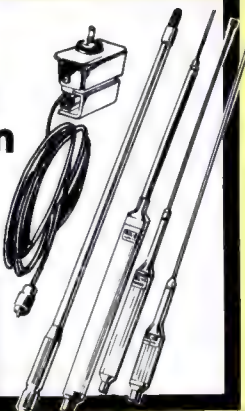
# Amateur



## Yaesu Quality HF/VHF Mobile Antenna System

The fabulous Yaesu antenna system for HF and VHF. You buy the gutter mount base and 2 metre stub, and you're on air on 2m immediately. As you want the HF bands, simply buy that band resonator/antenna whip and screw it into the 2m stub. You only have to buy the whips for the bands you want. Go mobile with Yaesu.

RSM 2 - GUTTER MOUNT	Cat D-4100	..... \$25.95
RSE 2A STUB (2M ANTENNA)	Cat D-4102	..... \$11.95
RSL 145 - 6M/2M ANTENNA	Cat D-4104	..... \$28.50
RSL 3.5 - 80M ANTENNA	Cat D-4110	..... \$26.50
RSL 7 - 40M ANTENNA	Cat D-4112	..... \$26.50
RSL 14 - 20M ANTENNA	Cat D-4114	..... \$26.50
RSL 21 - 15M ANTENNA	Cat D-4116	..... \$26.50
RSL 28 - 10M ANTENNA	Cat D-4118	..... \$26.50



## NEW FOR 83 2 Metre 5/8 Wavelength

Real value in a 2 metre whip: this one is the ideal replacement antenna for all 2 metre users. 5/8 wavelength long, very flexible (so you won't break it off on low flying aircraft) with standard 5/16" x 26tpi female socket on base. Use with either of the bases at right. Long-life black heatshrink covering. 1.34 metres long. Cat D-4205

**\$4.95**



## Weatherproof Antenna Base

Universal base for mobile use (we've even seen them used on aluminium roofs!). Neoprene & nylon washer ensure weatherproof mount, can be used through roof or on an antenna bracket (eg. roof rack). Requires 16mm hole. Use with W-1372 lead set. Fitted with standard 5/16" x 26tpi. Cat D-4056

**\$15.50**



## New Universal Magna-Base

Ideal for company cars, etc. where drilling holes in a roof is a definite no-no! Extra strong magnet grips any ferrous surface and stays stuck even at high speeds (tested at over 130km/h!). Gasket prevents scratching. Standard 5/16" x 26tpi male thread for use with amateur or CB antennas (for adaptors see CB pages). Cat D-4514

**\$19.50**

## Build your own 2 metre beam

Pull those signals you've never heard before, work through repeaters you've never been able to trigger!

Insulating nylon brackets, high quality nylon element brackets will accept 10mm elements, up to 17mm booms.

Cat D-4650 .... 90c



For bigger beams, cadmium plated brackets will take up to 17mm elements and 20mm boom.

Cat D-4652 .... \$1.60



## Egg Insulators

Small insulator, unbreakable nylon construction. Ideal for smaller antenna installations.



Cat D-5300 ..... 95c  
10 up ..... 70c

Medium size - made of the same material, but will handle much larger installations: e.g. for extra long arrays or guy wires.

Cat D-5302 ..... \$1.65  
10 up ..... \$1.35

## RAK BL-50A Balun

T' shape design for use as a centre support for dipoles or yagi antennas. I/P 52 ohms unbalanced, O/P 52 ohms balanced. Input RF power 1kW with an insertion loss of less than 1dB and frequency range of 3 - 30MHz. Cat D-5310



**only \$29.95**

## Antenna Balun Kit

Contains ferrite ring, enamelled copper wire and winding details for 1:1, 1:9 ratio. Input power 2kW PEP and frequency range 3 - 30 MHz. Cat D-5350

**\$12.95**

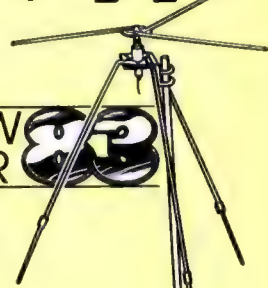


## V5JR 5Band Vertical

If you're typical of most amateurs, you live in the suburbs where space is at a premium. You need an effective antenna, but there are objections to putting up a beam (the wife, the neighbours, the council etc. etc.). You need our V5JR vertical. Virtually unnoticeable in your backyard, you'll be able to pursue your hobby without worry! The V5JR uses pre-tuned trap coil assemblies enabling the one antenna and feedline to automatically operate on any one of the chosen bands between 80 and 10 metres. The base of the antenna mounts on any pipe of roughly 25 - 31mm in diameter. Full setting up instructions are provided, including details of radials/guys to optimise performance if the antenna is to be operated in an elevated position.

- \* Covers 80 - 40 - 20 - 15 - 10 metres
- \* 6.25 metres high. Weighs 2.3 Kg
- \* Rated at 300W PEP
- \* Fits up to 32mm Dia support pipe

Cat. D-4305 **only \$99.95**



## NEW FOR 83

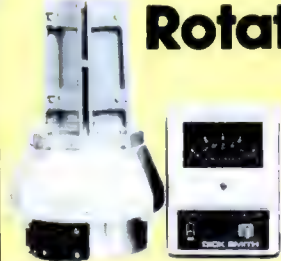
## SCAN-X SCANNER ANTENNA

Expand your horizons - use this antenna with any of our scanners for vastly superior gain and sensitivity over built-in antennas. Covers 85 - 520MHz. Comes complete with 7.6 metres of coax.

Cat D-4430 **VALUE \$49.95 AT**

## The Dick Smith Antenna

## Rotator



Dick Smith brings you top value in an antenna rotator, and this one has fully approved power supply. Don't take chances with many rotators being sold with non-approved supplies: they could be dangerous! Here's what you get:

- ★ Ruggedly made rotator with massive disc brake
- ★ Control box with beam direction indicator
- ★ One set of mast clamps (additional sets available)

Specifications  
Rotation period: 60 s. Rotation torque: 550kg-cm  
Braking torque: 1500kg-cm. Wind load 0.8m<sup>2</sup>  
Mast size: 38 to 50mm o.d. Vertical loading: 200kg

Separate components:  
Rotator & Control Box (Cat. D-5000) ... \$149.50  
Approved Power Supply (Cat. D-5002) ... \$27.50  
Additional Mast Clamps (Cat. D-5001) ... \$19.95  
Rotator Cable (Cat. W-2042) ..... \$1.60/m

Yes! This makes the complete system (rotator, control unit, & power supply) **ONLY \$177.00!!!**

## NEW FOR 83



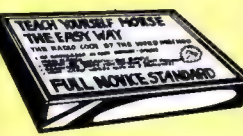
Now there's no excuse not to get your licence!

## NOVICE AMATEUR RADIO COURSE

The complete course of study for your novice licence. Everything is here: novice theory, handbook (80 pages of comprehensive data), DOC rules and regulation handbook, Morse code training tape, DOC examination forms. No more excuses for not having a licence now - this course makes it so easy. Cat D-7107

**amazing value \$16.95**

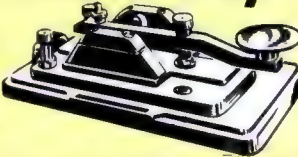
## Learn Morse the easy way... TEACH YOURSELF!



Learn Morse the easy way! These tapes will teach you words within a couple of minutes. And you'll be able to learn Morse up to full licence level (the tapes go up to 13 words per minute). Two tapes to the set. Cat D-7106

**VALUE AT \$8.50**

## Hi Mound Quality Hand Key



The best hand key on the market! Double ball pivot rollers and adjusting springs to suit all fists. Strong and positive action. Contacts for break-in keying. Cat. D-7104

**\$35.50**

## Economy Key

For the novice or anyone who wishes to learn Morse Code, then this is the inexpensive key on which you start. The spring tension is adjustable to suit your fist. Ideal for use with the 'Morse Practice Kit' in the 'Dick Smith Fun Way into Electronics Kits' - see kit pages. Cat D-7105

**\$2.75**



# Amateur

Get into two  
Metres with these  
exciting Yaesu  
rigs!



VHF handy FM  
Transceiver

Ten Memories  
and scan  
Facilities

## Yaesu FT208R

The FT-208R transceiver brings a new flexibility to today's active 2M operator. An easy to read LCD display is coupled with a 4-bit microprocessor, bringing 10 memories and a scanning function. Because of LCD you get extra long battery life. Only with Yaesu can you get these features at such an economical price. Check it out NOW!

Cat D-2889

AMAZING  
VALUE  
AT ONLY

COMPLETE WITH  
NICAD BATTERY & CHARGER

**\$339**

### SPECIFICATIONS

Frequency Coverage: 144 - 148MHz, 5kHz steps  
Mode of Operation: FM  
RF Output: 2.5/3 watts  
Sensitivity: 0.25uV for 12dB SINAD  
Selectivity:  $\pm 12$ kHz at -60dB  
Spurious Radiation: Better than -60dB  
Power Requirements: 10.8V DC (from Nicad battery supplied)



The FT-230R uses the latest breakthrough in microelectronics, providing you with unbelievable flexibility with simple operation and a full 25 watts output. Advanced micro-processor control gives you 5 or 10 KHz steps, full 144-148 coverage, 10 memories, 2 VFO's and scanning. Plus you get LCD readout, HI/LO power switch and built-in memory backup. The most incredible 2 metre FM radio around and you won't believe its small size! Cat D-2893

Frequency Coverage: 144 - 148 MHz  
Modes of Operation: FM  
Power Output: 25/3 watts  
Sensitivity: .25uV for 12dB SINAD  
Selectivity:  $\pm 7.5$ kHz (-6dB),  $\pm 15$ kHz (-60dB)  
Spurious Radiation: Better than -60dB  
Power Requirements: Nominal 13.8V DC  
Output Impedance: 50 ohms

3W/25W output  
144-148 MHz range  
that's the  
**FT230R**

Amazing  
Value  
**\$369**

## PA3 Charger Unit

Now you can stay on the air while mobile without worrying about running out battery power! The PA3 is a DC-DC adaptor which is ideally suited to the FT208, but can also be used with the FT290. Simply plugs into the car cigarette lighter to give 10.8V for main power as well as a separate charge current to keep the NiCads topped up. No more flat batteries! Cat D-2899

**\$32<sup>50</sup>**



Go  
anywhere!

with  
the  
**FT290R**

The brilliant Yaesu FT-290R. For the person who can't quite decide whether they want a portable or a mobile set. This one is both! And what's more, it's fully microprocessor controlled, offering up to ten memory channels, scanning, LCD readout, high or low power operation, all modes (yes, CW, SSB, and FM) plus full 144 - 148MHz band coverage. All this in a transceiver which can be operated both portable (from internal batteries and whip antenna) or mobile (ext. antenna and power sockets fitted). Try it, you'll like it! Complete with carry strap, scanning microphone and whip antenna Cat D-2885

### SPECIFICATIONS

Frequency Coverage: 144 - 148 MHz  
Modes of Operation: SSB, (USB, LSB), CW and FM  
Power Output: 2.5/5 watts at 12V DC  
Sensitivity: SSB/CW: 0.5uV for 20dB S/N, FM: 0.25uV for 12 dB SINAD  
Selectivity: SSB/CW: 2.4kHz (-6dB), 4.1kHz (-60dB), FM: 14kHz (-6dB), 25kHz (-60dB)  
Spurious radiation: Better than -60dB  
Power Requirements: 8.5 - 15.2V DC, memory backup: built-in lithium battery  
Output Impedance: 50 ohms

BARGAIN AT **\$349**  
\$7<sup>50</sup>

### Carry Case CSC1A

Attractive vinyl carry case for the FT-290R. Protects the radio from damage. Cat D-2910

### Mobile Bracket MMB11

This super convenient bracket allows for automatic connection to antenna and power lead by simply sliding the radio into the bracket. Complete with hardware for the secure installation of your FT-290R. Cat D-2911

### Flexi Antenna YHA15

Replace your rigid telescoping antenna with a totally flexible rubber antenna. No more broken antennas! Cat D-2912

**\$39<sup>50</sup>**  
**\$9<sup>50</sup>**



Amazing  
Value

## Quality 2 metre Linear Amp

Don't pay \$120 or more! This amp does a better job and will cost you less. This is an all mode, high efficiency linear amplifier for 2 metres. 30 watts output with only 3 watts in. 13.8 volt DC supply makes it perfect for mobile use. Dual time constant for SSB or FM operation. Reverse polarity protection too. Works great with our FT 290R and FT 208R or any 2M transceiver with up to 3 watts out. The best value in Australia! Cat D-2546



ONLY **\$89<sup>50</sup>** NEW FOR **83**



# The most up-to-date Communications radio in the world

## The brilliant FRG 7700/SW



For the professional monitor or serious SWL! If you want the best, you want the Yaesu FRG 7700 SW. Complete shortwave coverage with ease of operation the others only dream about. Just look at these features:

- 2MHz - 30MHz continuous!
- ALL Mode - including FM (great for working with converters)
- Digital frequency readout, with digital clock
- Superbly easy to operate: set pre-selection then tune!
- Timer for turning receiver on/off plus control of external equipment (such as a tape recorder)
- Optional memory unit gives 12 channel memory with backup (they stay memorized with the receiver turned off) **Cat D-2841**

Ask for a copy of our brochure showing you what the FRG 7700 SW can do for you. **INCLUDES BONUS 12V CONVERSION KIT!**

ALSO AVAILABLE: 150kHz - 30MHz version (FRG 7700 HF) **Cat D-2840 \$525**

All this  
for only

**\$499**

### Optional Memory Unit

Gives you single button re-call of any of 12 chosen frequencies. Simple connection, instructions included. **Cat D-2842**

**VALUE \$129<sup>50</sup>**

### VHF Converter



There's a lot more to listening pleasure than just the HF bands! Listen in to the exciting world of VHF radio: all the services, amateurs, etc. etc. 50-59, 118-130, 140-150MHz

**Cat D-2844**

**\$129<sup>50</sup>**

### Antenna Coupler



The FRG 7700 works with many types of antennas, but best with a low impedance one. This coupler ensures optimum performance always. **Cat D-2843**

**\$82<sup>50</sup>**

### Active Antenna



Don't want to string an antenna outside? Use the active antenna - powerful preamplifier plus a whip antenna will pull in stations you didn't think possible. **Cat D-2845**

**\$64<sup>95</sup>**



## Genuine Yaesu Amateur Radio Mics

### YD148 Dual Z Desk Mic

Smart styling - great performance and dual impedance versatility! Easy action P-T-T bar, with self-locking position for those long QSO's. Heavy base, so it won't slip around on the desk. Impedance is set by a switch on the rear of the mic base. **Cat C-1118**

Impedance:  
500 ohms & 50K  
Mic Plug Pins: 4  
Suits Models: FT101 series, FT901, FT902, FT7B, FT301

**\$45<sup>50</sup>**

### YM38 Dual Z desk type with Scanning

Similar to above Yaesu desk microphone, also with switch for dual impedance. This one also has three extra push buttons for use on scanning transceivers. May be used on other transceivers by using different pins on plug. **Cat C-1113**

Impedance:  
500 ohms & 50K  
Mic Plug Pins: 8

Suits models: FT ONE, FT102, FT707, FT77, FT980, FT107, FT480R

**\$49<sup>95</sup>**

### YE7A Standard Model

The favourite microphone for countless Yaesu operators! Simple yet effective, supplied with standard 4 pin plug which suits not only the Yaesu models shown, but dozens of other Amateur & CB transceivers too. **Cat C-1117**

Impedance: 500 ohms  
Mic plug pins: 4  
Suits Models: FT101 Series, FT901, FT902, FT7B, FT301.

ONLY  
**\$14<sup>95</sup>**

### YM37 Standard Model

Similar to the above microphone, but this one is supplied with the 'new' standard 8 pin socket - suiting the newer Yaesu models. Of course, this can be re-wired with the 4 pin plug. **Cat C-1119**

Impedance: 500 ohms  
Mic plug pins: 8  
Suits models: FT ONE, FT102, FT707, FT77, FT980, FT107, FT480R.

ONLY  
**\$16<sup>95</sup>**

### YM35 with Scanning

Similar to above microphones, with 8 pin plug, but this mic also has scanning push buttons. Use with transceivers equipped for this mode of operation. Buttons shielded in protected section at top of mic to prevent accidental channel change. **Cat C-1116**

Impedance: 500 ohms  
Mic plug pins: 8  
Suits models: FT ONE, FT102, FT707, FT77, FT980, FT107, FT480R.

ONLY  
**\$29<sup>95</sup>**

### YM24A Speaker Mic

Now a microphone and speaker in one - ideal for use with hand helds - means you don't have to hold the hand-held up to your ear! Complete with scanning buttons and a channel lock switch. **Cat C-1111**

Impedance: 2000 ohms  
Mic plug pins: 6  
Suits models: FT207R, FT208R

ONLY  
**\$32<sup>50</sup>**

### Universal Dynamic Mic

Designed especially for AM & SSB transceivers. This economical mic is supplied with a 5-wire (4 lead plus shield) 2 metre lead that can be adapted to any transceiver - even ones with electronic switching! Has a nominal 600 ohms impedance, can be re-wired with internal transformer for 50K. Supplied with a standard 4 pin socket. **Cat C-1102**

ONLY  
**\$13<sup>95</sup>**

### Noise Cancelling Mic

Ideal for the amateur or CB'er. Noise cancelling is achieved by use of twin out-of-phase inserts. Fitted with a high quality PTT switch and coiled lead, impedance is 250 - 600 ohms with a frequency response of 300-5000Hz. We've seen these mics advertised for over \$30.00 - but not at Dick Smith Electronics! **Cat C-1105**

AT ONLY  
**\$19<sup>50</sup>**

### Noise Cancelling Power Mic

The cleanest signal yet. Get both audio amplification AND noise reduction for under \$40! Noise enters front and rear of mic - cancelling each other out. Comes wired to a standard 4 pin socket. Needs 9V battery (not supplied) **Cat C-1108**

**\$32<sup>50</sup>**

### Microphone/Earphone Headset

Popular 'aircraft' style single headphone unit allows simultaneous headset and local environment communication. Use with any transceiver. Long lead, 'push to talk' switch box & speaker plug supplied (but not microphone plug). Impedance: Headphone 8 ohm, mic 600 ohm. **Cat C-1120**

**\$34<sup>00</sup>**

### Mobile Mic Mounting Clips



**Cat C-1260**

MAGNETIC TYPE - cure a dangerous dangling microphone with this clip. It attaches to the rear of most hand-held microphones. A strong magnet holds the microphone securely in place to any ferrous surface. **\$1<sup>25</sup>**

SCREW-IN TYPE - a simpler type clip, can be screwed to any convenient location - the mic is held securely by a spring in the clip. Complete with mounting screws. **Cat C-1262**

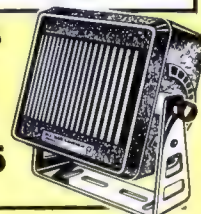
**80¢**

### Remote Communications Speaker

5 watt capacity • 10cm speaker • 3.5mm plug

Great for the car, home - in fact anywhere you need an extension speaker for your transceiver or receiver. 8 ohms impedance, supplied with cable and standard 3.5mm audio plug. Because of the larger (10cm) dia speaker, you'll probably get much clearer sound too. **Cat A-2451**

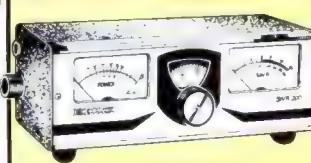
VALUE AT  
**\$10<sup>95</sup>**



### SWR/POWER METER

One of the best power meters ever seen in Australia: famous Osbornblock 3MHz - 200MHz, measures 0 - 2kW in 4 ranges; VSWR to 10:1. Through-line measurement. 52 ohm & 75 ohm

unbeatable **\$99<sup>95</sup>**  
value



**Cat Q-1340**



# Amateur

More amateur radio license holders to advise you of your requirements than any other company selling amateur radio!

Dick Smith VK2DIK  
Ike Bain VK2AIG  
Garry Crapp VK2YBX  
Ray Dickinson VK2LD  
Ross Tester VK2KRT/ZVO  
Jim Rowe VK2ZLO  
Jim Powell VK2CK  
Tony Di Bona VK2NXI  
Michelle Huckle VK2PAI  
Tony Brown VK2NFS  
Ian Lindquist VK2YTZ  
David Wales VK2NWU  
Martin Lansdown VK2CSW  
Leslie Ayling VK2VCY  
Anthony Wolff VK2EZZ  
Tony Stone VK2VPR  
Chris Ayres VK2NYA/YUS  
Joe Lynch VK2VIR  
Bob Dyball VK2YLC  
Stuart Cameron VK2ADE  
David Cogan VK2NLC  
Gordon Markovic VK2PEO  
Duncan Myers VK2VMB  
John Rodgers VK3NBR  
Tony Snook VK3AAC  
Syd McKittrick VK4ZMK  
Nigel Jays VK5ZZF  
Richard Darley VK5ZRQ  
Nick Bruining VK6ZNB



## FL2100Z 1.2kW All Band Linear Amplifier

For the amateur who really wants to push out a clean, strong signal, try the WARC FL-2100Z. With its maximum input of 1.2kW PEP, Australian amateurs can be assured that at our maximum legal limit of 400W PEP the FL-2100Z is just coasting - resulting in years of extra life from the output valves, and less stress on other components. The output bottles, by the way, are two rugged 572-B's running in class AB2 grounded grid. All you need for drive is any transmitter/transceiver capable of at least 30 watts. For full power operation (yes, you can obtain P & T approval for running 'power' in certain circumstances), you'll need around 100W of drive. The 2100Z features dual cooling fans for reliable operation and gives you a plate voltage reading and a VSWR & IP reading from its two meters. Easy to operate, suits virtually all amateur transceivers on the market.



### SPECIFICATIONS

**Drive:** 30-100 Watts  
**Input:** 1200W PEP on SSB, 1000W on CW  
at 50% duty cycle, 400W on AM/FM/FSK  
**Input Impedance:** 50 ohms unbalanced  
**Output Impedance:** Normally 50-75 ohms  
unbalanced with not more than 2:1 SWR  
**Distortion products:** -31dB or better at 1kW  
**Noise level:** 40dB below single tone carrier  
**Power requirements:** 110-240 volts, 2.1kW

Cat D-2548

AND ONLY **\$580**

NEW FOR 83



## A Thrifty HF Transceiver FT-77

Utilizing the new CAD/CAM\* manufacturing technique, Yaesu's FT-77 is the new milestone in reliability, simplicity and economy in HF communications. Features solid state, no tune circuitry and a nominal 100 watts of RF output. Operation is actually simpler than some VHF/FM transceivers. Simple circuit design leaves fewer parts that could cause problems. Ideal for mobile operation or as the heart of a complete base station. \*COMPUTER AIDED DESIGN, COMPUTER AIDED MANUFACTURE

### Specifications:

**Frequency Coverage:** All amateur bands between 3.5 and 29.9MHz, including the 3 WARC bands.  
**Modes of Operation:** A3J(LSB/USB), A1(CW), F3(FM) optional.  
**Input Power:** 240W DC for nominal 100W output.  
**Sensitivity:** 0.3uV for 10dB S/N/N (SSB and CW-W); 0.15uV for 10dB S/N/N with CW-N option; 0.7uV for 12dB SINAD (FM, with FM option)  
**Selectivity:** SSB CWW 2.4kHz (-6dB) 5kHz (-60dB); CW/N 600Hz (-6dB) 1.3kHz (-60dB); FM 12kHz (-6dB) 24kHz (-60dB)  
**Spurious Radiation:** Less than -40dB  
**Power Requirements:** 13.5V DC; 1A receive, 20A transmit

Cat D-2915

### FM Unit

Plug-in PCB gives your FT-77 an extra mode: FM! Great with converters. Cat D-2918

AND ONLY **\$44<sup>95</sup>**

### Marker Unit

Be sure where you are with this 100kHz marker unit. Plug-in PCB. Cat D-2919

VALUE AT **\$15<sup>95</sup>**

NEW FOR 83



The incredible

## FT 980

All mode computer aided HF Transceiver

This incredible new transceiver incorporates the highest level of microprocessor control ever offered in an HF solid state radio. Including a general coverage (15 - 30MHz) receiver with a separate front end, this amateur transceiver offers a new dimension in frequency control: frequencies can be entered by either front panel keypad or tuning dial, and then scanned in selectable steps either freely or between any two programmable limits. The most important feature of the FT980 is that practically all the functions can be controlled by the user's separate personal computer.

• Microprocessor control • Full function keyboard • Scanning • All solid state • Full coverage receiver • All mode operation • 100 watt output • RF speech processor • If notch and audio peak filters • Adjustable noise blanker

\*WITH FM OPTION

### SPECIFICATIONS

**Frequency receive:** 150kHz-30MHz  
**Frequency Transmit:** 160, 80, 40, 30, 20, 17, 15, 12, 10 MTRS  
**Modes:** LSB, USB, CW, AM, FSK, FM\*  
**Power output:** SSB CW 100 W PEP; AM 25W; FM, FSK, 50W  
**Carrier Suppression:** Better than -40dB  
**Unwanted sideband suppression:** Better than -50dB  
**Spurious radiation:** Better than -40dB  
**Harmonic radiation:** Better than -50dB  
**Audio response:** 300Hz to 2700Hz  
**FSK shift frequency:** 170Hz  
**Output impedance:** 50 ohm  
**Audio output power:** 3 watts  
**Receiver sensitivity:** SSB better than .3uV  
CW better than .2uV  
FM better than .6uV  
**Selectivity:** SSB, CW, FSK 2.4kHz (-6dB) 4kHz (-60dB)  
CW(N) 300Hz (-6dB) 900Hz (-60dB)  
CW(M), FSK(N) 600Hz (-6dB) 1.3kHz (-60dB)  
AM 6kHz (-6dB) 11kHz (-60dB)  
FM 12kHz (-6dB) 24kHz (-60dB)  
**Power Requirements:** 100-120V, 200-240V 50-60Hz

Cat D-2920

INCREDIBLE VALUE

**\$1795**

Dick Smith Electronics:  
Australia's largest supplier  
and Yaesu factory approved  
distributor & service centre



## Antenna Tuner

Get the most from your FT-77. The Yaesu FC-700 antenna coupler will ensure that your transceiver always delivers the power it should. Styled to complement the FT-77, it has all the features you need: large power/SWR meter, in-built dummy load, all band coverage (incl. WARC), less than 0.5dB insertion loss (You more than make up for that because of a better match) D-2917

ONLY **\$159<sup>95</sup>**

## Power Supply/Speaker

Here's an added bonus - the FT-77, the great mobile rig, is just as good as a base station. Just add the FP-700 mains power supply and you're away. You get the fully regulated 13.5V at 20A that your FT-77 needs. Has problem-free plug-in connections plus an extra large speaker for greater clarity. Cat D-2916

VALUE **\$199**



# Want the ultimate? the brilliant YAESU FT-ONE

You're dreamed of owning a transceiver like this. Now you're dreams can come true!

Compare the Yaesu FT-ONE with other general coverage transceivers: you'll find it offers much, much more - and at a lower price! If you want a transceiver that commands the bands, you won't do better than the FT-ONE.

And you won't do better than buying your Yaesu from Dick Smith Electronics, Australia's leading factory-approved Yaesu agent with full back-up and service facilities.

## look at these features:

- ALL mode - even FM\* - so you can 'go anywhere' - on its own, or teamed up with a transverter. It's brilliant! (\*WITH OPTIONAL FM BOARD)
- ALL band - it receives from 150kHz to 30MHz continuous, with resolution down to 10Hz! And the transmitter includes all the new WARC bands.
- ALL microprocessor controlled - which makes operation nice and easy for you (including keeping track of the FT-ONE's 10 VFO's)
- ALL area operation: run it from 100-120 or 200-240V AC in the shack, or 13.5V DC when mobile!
- ALL solid state (of course!) with a massive complement of 659 semiconductor devices, including over 70 IC's!
- ALL performance - with better than 0.3uV sensitivity and more than 100W PEP output (SSB).

Cat D-2852



## Optional FM Board

Get the most from your FT-ONE with the optional FM board. With all its VFOs, memories, etc operating with a transverter for repeaters, OSCAR, etc is a breeze. Plug-in PCB.

Cat D-2851

all this  
for only  
**\$1995**

**\$69<sup>95</sup>**

Chosen by Dr. David Lewis for the  
1982 Antarctic Scientific Expedition

## Specifications:

Frequency Coverage: RX 150kHz-29.999MHz; TX 1.8MHz-29.999MHz  
Modes: LSB, USB, CW, FSK, AM, FM  
Case Size: 370(w) x 157(h) x 350(d)mm  
Weight: approx. 17kg  
Power Requirements: 100 - 120/200 - 240V AC; 13.5V DC  
Power Consumption: Power switch off for memory backup: 3.5VA (at AC); 0.95W (at DC); TX: 560VA (at AC); 270W (at DC); RX: 90VA (at AC); 36W (at DC)

## Transmitter

Carrier Suppression: Better than -40dB  
Unwanted Sideband Suppression: Better than -50dB  
Spurious Radiation: Better than -40dB  
Frequency Response: 300 - 2700Hz  
3rd Order IMD Product: Better than -31dB  
RF Output Impedance: 50 ohms  
Microphone Impedance (low): 500 - 600 ohms  
Output Power: 100 watts PEP

## Receiver

Sensitivity: Measured for 10dB S+N/N 150kHz - 1.8MHz better than 5 uV 1.8 - 29.99MHz better than 0.3uV  
Selectivity:  
SSB: -6dB at 2.4kHz to -60dB at 4.0kHz;  
CW: -6dB at 600Hz to -60dB at 1.2Hz;  
CW: -6dB at 300Hz to -60dB at 900Hz;  
AM: -6dB at 6kHz to -60dB at 10kHz

NEW  
FOR

# FT-102 HF All Mode\*

\* WITH OPTIONAL AM/FM BOARD



## SP-102 Speaker/Filter

Features a large 120mm hi fi speaker with selectable low and high-cut audio filters, allowing 12 possible response curves. Headphones can be connected to the SP-102. Filter allows audio tailoring for each bandwidth and mode of operation. Two input jacks provided.

Cat D-2883

ONLY **\$72<sup>50</sup>**

## Transceiver

A fantastic new, super high performance HF transceiver has arrived. The FT-102 has all the amateur bands PLUS the new WARC bands. Special high voltage JFET RF amplifier provides exceptional dynamic range - well beyond 100dB. Adjustable Noise Blanker even works on 'the Woodpecker'. Three 6146B final tubes provide remarkable emission purity - plus big power 240W. Has IF Width and IF Shift and the best notch and audio peak filter you've ever heard. You must see this one to believe it!

Cat D-2880

## SPECIFICATIONS:

Coverage: 160, 80, 40, 30, 20, 17, 15, 12 & 10 meters  
Modes: LSB, USB, CW, AM & FM \*\*  
Input Power: 240W (SSB, CW) 80W (AM) 160W (FM)  
Sensitivity (for 10dB): 0.25uV SSB, 0.18uV CW  
Selectivity: -6dB/-60dB 2.7/4.8kHz SSB, CW, AM  
Sideband Suppression: better than -40dB  
Dynamic Range: 95dB min.  
Power Requirements: 100, 117, 200 or 240VAC, 50/60Hz

\*\* AM/FM UNIT OPTIONAL

AND ONLY  
**\$1049**

## FC-102 Antenna Tuner

This newly designed antenna tuner is ideally suited for use with the FT-102 station. Power handling capability of 1.2kW. Bandswitched L-C network will match a wide variety of antennas (including a single wire) to your transceiver.

Cat D-2881

ONLY **\$319**

## AM/FM Board

Plug-in PC board to give you the added benefits of AM/FM operation: Fantastic for 6 or 2 metre transverters (why buy another rig when you can get up there with your HF rig for so little?)

Cat D-2882

ONLY **\$72<sup>50</sup>**

& to match your  
FT 77

## FTV 707 (FTV 700) Transverter



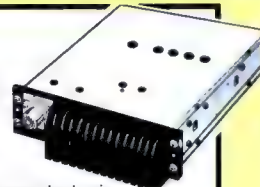
The FTV-707 is a mono-band transverter, designed to match the FT 707/77 series. A 6 metre, 2 metre or 70 cm unit can be installed in the FTV-707 depending on the band of operation you desire. Satellite bands are provided for satellite operation allowing full duplex operation using an external receiver in addition to the FT-77/FTV-707. Fully solid state, the FTV-700/707 provides input power of 20 watts PEP on each unit, and the final amplifier (module) is protected against damage caused by high SWR. Can be used in the SSB, CW, AM, FM mode.

Cat D-2876

INCREDIBLE VALUE

**\$145**

plug in  
modules



These modules plug in to the transverter to give the band required. (One module at one time!)

2 metre module Cat D-2877

**\$149**

6 metre module Cat D-2878

**\$109**

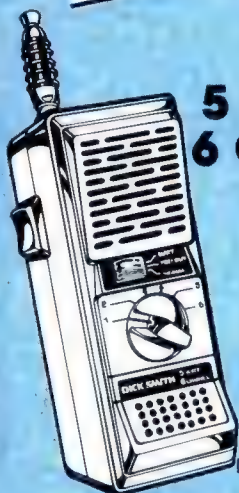
70cm module Cat D-2879

**\$249**



# Marine Radio

**NO BOAT IS TOO SMALL!**



**5 Watt/  
6 Chan.  
Hand  
Held**

**GREAT  
VALUE!**

D.O.C. App. No. 242M161

Here's a transceiver offering the maximum legal power on the 27MHz marine band (5 watts) and a choice of up to six channels (unit is supplied with 27.88MHz already fitted). This transceiver offers you all the power of the fixed type, but you can take it home with you when you leave the boat. It operates on 12 volts from either batteries or your boat's power (it has a socket to take 12 volts input). A real work horse! Cat D-1123

**ONLY \$125**

**Our  
Most Popular  
Hand Held!**

**Dick Smith  
1 Watt/  
3 Chan.  
Economy  
and  
Safety**



For the weekend boatmen who don't want the more expensive full power transceivers, but who still need that reassurance of having a safety transceiver on board. Three channels available, one fitted with 27.620MHz, the others left blank for your own choices. Crystals are reasonably priced and are easy to fit: just plug them in! This set will take 8 ordinary 'AA' pencil batteries or 10 rechargeable 'NiCad' batteries. Cat D-1102

**ONLY \$55**

**Hand Held  
XTALS**

**ALL \$5.00 PAIR**

Standard transmit/receive pairs for the popular 27MHz marine channels. Simply plug into the hand-held (also suit older style in-dash transceivers).

27.550 D-6055... 27.880 D-6088... 27.910 D-6091  
27.620 D-6062... 27.890 D-6089... 27.940 D-6094  
27.860 D-6086... 27.900 D-6090... 27.960 D-6096

## Economy AM

**YOURS  
FOR  
ONLY  
\$129**

Here's the simplest marine transceiver available: just four easy controls. It's made simple so that in an emergency, even a child could get help. Yet it features maximum legal power, with operation on all current marine channels (with room for expansion to any new ones). This transceiver is a low current drain type, making it ideal for the small boat which doesn't have large battery capacity. Complete with microphone, mounting bracket and full instructions. Cat D-1402



D.O.C. App. No. 244020

**FAMOUS RJ3150M  
'NATIONAL' 9 Chan.**

The National RJ3150M 27MHz marine two-way transceiver. All the great features you expect of this famous name marine transceiver, including switchable delta tune and automatic noise limiter, brilliant power and signal strength meter, LED channel readout, etc. This transceiver is made to operate on the 9 marine channels between 27.680MHz and 27.960MHz. This quality transceiver comes complete with microphone, bracket, power lead and instructions. Suitable for all boats, large and small. Cat D-1410



D.O.C. App. No. 244008

**\$139  
ONLY**

## Unsurpassable value in Antennas

### The Dick Smith Two Way Marine Antenna

There's simply no point in putting a two-way in your boat if you're not going to put a decent antenna in too... This outstanding marine antenna features our famous 'any-which-way' base. It can be mounted on any surface (even vertical!) and the antenna can be adjusted correctly. There's a quick release lever to lower the antenna for bridges, trees, marinas, etc. The antenna itself is made of tough, resilient fibreglass. This type of antenna can be used on any vessel - it does not need a metal 'ground plane' as some other types do. It is tuned with a simple in-line adjusting unit which gives peak performance. It comes complete with co-axial cable, already fitted with PL-259 plug to connect straight into your two-way radio. Incredible value for such a fine antenna!

**COMPLETE ANTENNA:** (inc. base, whip antenna and tuning box) Cat D-4071

**ONLY  
\$55.00**

### Antenna Base

This antenna base, as used with the Two Way Marine Antenna, can be used with any 3/8" 24 TPI whip antenna. It's strong and very adjustable with a quick release lever to lower the antenna for bridges, trees etc. It can be mounted on any surface. Cat D-4057

**ONLY  
\$26.00**

### VHF Whip Antenna

Antenna to suit VHF Marine Transceiver (D-1401). This antenna screws into our D-4057 antenna base supplied - as seen above. Cat D-4016

**ONLY  
\$59.00**

**SPECIAL 'HI-SIDE'  
RECEIVE ONLY XTALS  
\$5.00 each**

Some hand-helds and older types of transceivers using plug-in crystals suffer from interference from hospital paging, CB radios, etc. By fitting 'Hi Side' receive crystals (leave the transmit crystal as is) you effectively move further away from the source of interference. NB: all channels must be fitted with either 'Hi Side' or standard crystals (not a mixture).

27.880 D-6123 27.900 D-6125 27.910 D-6126



# fancy chandler's prices?

Now a VHF Marine Transceiver under \$400!

## The Dick Smith VHF Marine



The brand new Dick Smith VHF Marine transceiver - the lowest priced small, simple VHF transceiver available! And it offers just as much, if not more, than models you'd pay hundreds of dollars more for. Look at these features:

- All 55 international VHF marine channels fitted (no expensive crystals to buy) in the 156-163MHz marine band.
- Fully approved under Department of Communications Specifications RB274B.
- Maximum legal power output (25W) with low power, 1W - switchable to conserve battery power if required.
- Universal mounting with front panel reversible to allow for any position.
- Endorsed for OTC's 'Seaphone' service (making telephone calls from your craft).
- Complete with mounting brackets, microphone, power cable and full instructions.

Cat D-1401

D.O.C.  
Approval No.  
274B033

ONLY  
**\$399**

ENDORSED BY OTC SEAPHONE TO BE  
LINKED WITH NORMAL TELEPHONE  
NETWORK



NEW  
FOR **83**



## Top Value Dick Smith Hornet Marine AM/SSB

Now a superb new AM/SSB marine transceiver - based on our incredibly popular Hornet II CB. For the top range, top performance on 27MHz marine, you can't go past SSB. And you can't go past the Hornet II Marine: this superb transceiver features all current legal 27MHz marine channels with no expensive crystals to buy AND the phased-lock-loop circuitry is ready to be expanded for any future channels.

Cat D-1716

ONLY **\$249**

D.O.C.  
Approval No.  
244010





# Quality

**1,000's SOLD!**



## YES, YOU CAN BUILD YOUR OWN Car Computer

The ultimate car accessory is now a reality—at a fraction of the price of commercial models. With the superb Electronics Australia Car Computer, you really CAN get the most from your car, resulting in better motoring — and a significant reduction in fuel bills! Whether you own a Mini or a Porsche, you'll be better off with a car computer.

- It will give you 12 different readings:
- Time: Either the time elapsed since the start of the journey (accurate to one minute) or the time remaining to complete the journey at your average speed since commencement (updated every minute or kilometre as preferred).
  - Fuel: It will show you the amount of fuel you have used — or the amount of fuel left — or even how much fuel your tank can take at the moment!
  - Distance: Your choice of distance travelled, or the distance remaining on this journey — or the distance possible with the amount of fuel you have left.
  - Speed: Your exact present speed (much more accurately than your speedo can show!) or your average speed since the start of the journey.
  - Consumption: Either your present (instantaneous) consumption (lead footers: be prepared to be shocked!) or your average consumption since the start of your journey.

Car K-3400 ★ ★ SEE EA-July, August, September, 1982.

**NEW LOW PRICE \$89.50**  
(plus sensors)

**EXCLUSIVE**

Your car computer comes with a specially prepared step-by-step construction manual containing all the EA construction information, a guide to kit construction, and our unique "Sorry Dick, It Doesn't Work" fixed fee repair service.

**SAVE OVER \$20**  
YES! This makes the full Car computer (inc sensors) now only \$151.00 — save over \$20 on previous kit price.



### Remote display Control

Wondering where you were going to mount the car computer in your instrument panel? Remote Display/Control Unit houses all the main functions of the Car Computer and can be easily mounted on the top of the dashboard.

Car K-3405 ★

**ONLY \$21.50**

### 'Moray' Fuel Flow Sensor

Exclusive to Dick Smith Electronics, the fully imported "Moray" is the ONLY fuel flow sensor to give optimum results with the car computer.

Car K-4100

**EXCLUSIVE \$49.50**

### Speed Sensor

Takes readings directly off the driveshaft rather than speedometer cable. Much easier to install and not subject to the problems of speedo-cable devices.

Car K-5102

**ONLY \$12.50**



# 6 Digit Car Clock

Includes all parts to assemble a complete clock module with 6 digit LED readout. Displays hours, minutes and seconds; operates from any 9-16V DC source; uses a simple power supply or plug pack for 240V AC operation.

- Even has seconds display.
- Amazing chronometer accuracy — quartz crystal controlled.
- Extremely easy to build even for the beginner — only requires a steady hand and fine tipped solder iron.
- Ideal for boats, cars, aircraft, home.
- Bright red LED digital readouts, each a huge 8mm high.
- Display can be switched off to save power, timing circuit remains operative.
- Highly detailed instructions include details of a simple mains supply.

Cat K-3485 ★★ SEE EA March, 1979.  
Power supply to suit Cat M-9814

FOR ONLY  
**\$19<sup>75</sup>**

## LED Tachometer

Displays engine speed in an analogue form in an illuminated row of LEDs. This form of display indicates your engine's performance at a glance. Used with 12V positive and negative earth systems and there are only 2 connections required. Instructions included. A green kit.

Cat K-3240 ★★ SEE ET August, 1980.

AND ONLY  
**\$24<sup>50</sup>**

**IMPROVED!**

## Car Alarm Mk.2

The Car Alarm Mk.2 uses a different triggering technique — one that makes it less prone to false triggering! It will detect a voltage drop ANYWHERE in the vehicle's electrical system. In other words, as soon as lights, ignition, horn, radio, or any other electrically operated fitting is switched on, the alarm will be triggered. The Car Alarm Mk.2 also has lots of other features.

### Features

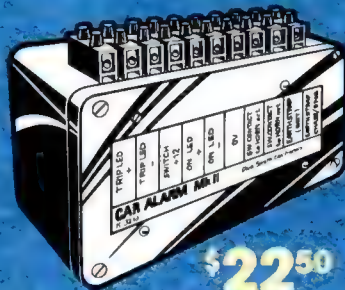
- Optional 'Ignition Kill' when alarm is on.
- Flashing 'ALARM ON' LED.
- Solid diecast box.
- Easy to install.
- 'ALARM TRIPPED' LED to tell you that someone has tried to steal your car!

And with just a few additional components, you'll get:

- Variable Exit/Entry delay times.
- Variable Alarm On time.
- Variable Horn/LED pulse rate.
- Optional alarm reset after 45 seconds.

The Dick Smith Car Alarm Mk.2 just has to be the surest and cheapest anti-theft device on the market.

Cat K-3253 ★★ SEE ET July, 1981.



**\$22<sup>50</sup>**

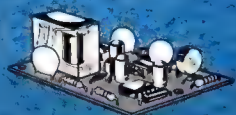
Includes Die-Cast Case & Terminal Block

**WARNING**  
**HI-VOLT**  
**ALARM**  
**PROTECTION**  
DICK SMITH ELECTRONICS

Both these Car Alarms include this warning sticker at no extra charge!

Also available separately for only \$1.00. Cat L-5310

## Economy Car Alarm



This alarm senses the voltage drop in your car's electrical system when a thief breaks into it. There's a visual warning for thieves so that chances are they will not even attempt a break-in. Easy to install — saves a lot of trouble.

Cat K-3250 ★ SEE ET May, 1977.

ONLY  
**\$13<sup>50</sup>**

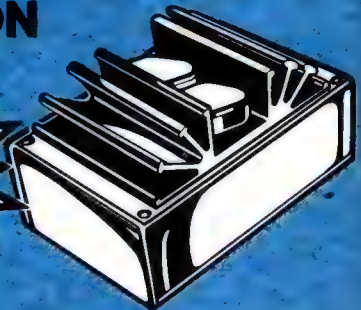
Only Dick Smith has a 7 day satisfaction guarantee

NEW  
FOR



## ALL NEW E.A. TRANSISTOR ASSISTED IGNITION

New Improved Design



They said it couldn't be done, but now this Electronics Australia designed "high energy" ignition system has been revised and is even better than before! Circuit modifications add to stability and give higher energy, and it's housed in a waterproof die-cast box with deluxe radial fin heatsink for best possible performance. Ideal for use in all conventional ignition vehicles. It can even be used with optional triggered distributors — see EA article for details (Feb '83). Some of this unit's impressive features include:

- **Dwell Extension:** Gives a longer spark to ensure that ALL the petrol in the cylinder is burned.
- **Compatible with Modern Electronic Tachometers:** We've yet to find a tach that won't work with this TAI as compared with CDI, where some won't work at all. Now you don't have to replace or adapt your tach to suit.
- **Eliminates 'crossfire' problems:** Fits a V8 or competition engine without worries since TAI doesn't suffer from the same 'crossfire' problem that can occur with CDI. And it's just as reliable in the family car.

Cat K-3301 ★★ SEE EA February, 1983.

AMAZING VALUE

**\$34**

## Capacitor Discharge Ignition

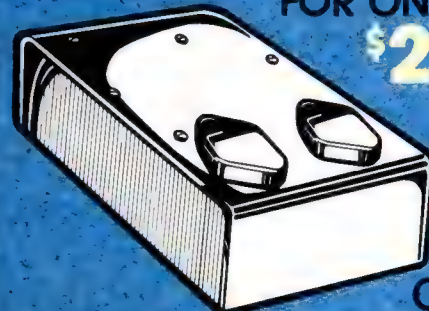
This has got to be the best value CDI available. Your car will be easier to start... When cold or hot, your plugs will last longer, keeping your car in tune and using less petrol. When you add that up, it's easy to see that a CDI won't take long to pay for itself!

- Special resistors for less heat build-up.
- Complete, fully detailed instructions.
- Special connector lugs, so you can disconnect and re-install in minutes.
- Special heatsink compound and transistor insulating covers.
- An EXCLUSIVE heavy duty aluminium case for better heat sinking, predrilled for easy assembly.
- Coils are pre-wound to save time and worry!

build it in a few hours!

FOR ONLY

**\$29<sup>50</sup>**



Cat K-3290 ★★ SEE EA July, 1975.

OVER  
10,000  
SOLD!



# Quality Kits

## Why you should insist on a quality DICK SMITH KIT

We only use brand new, prime spec components in our kits. Beware of other kits which may use inferior parts or manufacturer's seconds.

**Our kits are complete!** We supply everything you need to build the project, down to the last nut and bolt (unless it is a 'short form' kit). We even include step-by-step instructions, rewritten by our technical specialists (in conjunction with the electronics magazines) to make construction easy. If we do have to make any parts substitutions, we check these out with the magazine and the designer of the project first.

**Our kits are guaranteed!** Every kit we sell is covered by our exclusive 7 day satisfaction guarantee. After purchasing the kit, before you open any of the individual component packs, if you think that the kit is beyond your capabilities, you can return it (in its original condition and packaging) for a full refund of purchase price.

**And only we have a 'SORRY DICK IT DOESN'T WORK' service!** If you build one of our more complex kits and, by some chance, you cannot get it to work properly, we have a reduced cost repair service. For a fixed fee, our service centre will diagnose any faults (they find about 75% are dry joints!) and if necessary replace any parts to get your kit working. Note this service is available only on nominated kits.

**And you save by building it yourself!** Because you supply the labour, your project could cost less than half the amount of an equivalent commercial product. And that's a saving worth making! Also, buying components in kit form is a substantial saving over buying parts individually AND think of the convenience!

**SPECIAL 'DEGREE OF DIFFICULTY' KEY**  
To assist you in determining if a kit is suitable for you, we have included a 'star rating' on each kit as follows:

- ★ (1 star) suitable for beginners; quite easy
- ★★ (2 stars) suitable for the average hobbyist
- ★★★ (3 stars) suitable for advanced hobbyists with good soldering & construction techniques.

They look so good your friends will never believe you built them!



### NEW FOR 83 **was \$49<sup>50</sup>** **\$35<sup>50</sup>**

### Digital Clock/Thermometer

A project that gives you all the features of a digital alarm clock as well as a digital thermometer! The thermometer will display in either Fahrenheit or Celsius and the clock will even turn your radio on for you. Extremely large display has exclusive auto-dimming circuit to take the strain off your eyes. Fitted with alarm (speaker included) and snooze button, the clock is mains powered with battery back-up. No case is included with this kit.



**\$12<sup>50</sup>**

Cat. K-3436 ★ SEE EA SEPTEMBER 1981

OPTIONAL CASE H-2505

### NEW FOR 83 **Driveway Sentry**

Cat. K-3305 ★★ SEE EA DECEMBER 1982

Tired of fumbling your way from your car to the garage light switch or falling over the kids' roller skates? This kit is for you. Activated by the car's headlights, the Driveway Sentry will turn on a driveway, garage and/or porch light, so that you can make a safe exit from your car in the darkest of nights. Automatically turns off the light after 5 minutes.

Includes deluxe die-cast case.



**\$29<sup>50</sup>**

### Universal Timer/Stopwatch

**\$39<sup>50</sup>**

Cat. K-3435 ★★ SEE EA SEPTEMBER 1981

An all-purpose counter that can be used as a stopwatch, countdown timer or event timer. Large, bright 4 digit LED display is a feature of this terrific kit. Timing rates are switch selectable between 0.01 secs to 1 sec. Indispensable for sporting events, darkrooms — in fact anywhere, where keeping an accurate track of time is important. And if you wish, you may wire the unit for any of seven different functions.



**\$38<sup>50</sup>**

### Negative Ion Generator

Cat. K-3335 ★★ BASED ON PROJECT IN ETI APRIL 1981

You've heard all about Negative Ion Generators and their benefits, now buy the kit and find out what it's all about. Many commercial units run from the mains, but our kit is safe — it runs on 12V DC, which also means that you can put one in your car! Kit includes exclusive Dick Smith emitter head, power pack and tough moulded plastic case.

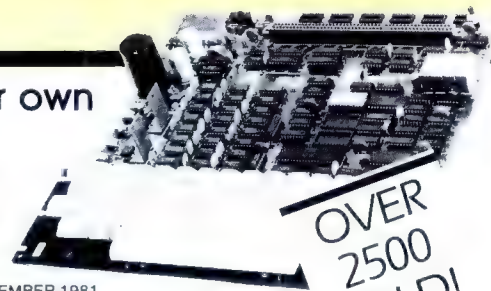


build your own powerful personal computer

Cat. K-3600 ★★

SEE EA AUGUST, SEPTEMBER 1981

The Dick Smith **was \$295<sup>00</sup>**  
**Super 80** **\$245<sup>00</sup>**  
**save \$50<sup>00</sup> now**



OVER 2500 SOLD!

The Electronics Australia/Dick Smith Super 80 computer offers specifications that, we believe, just cannot be bettered at the price. With the popular Z80 Microprocessor IC, a professional keyboard, direct RF output (so that it can be used with any TV set) and advanced 9k SUPER BASIC (optional), the Super 80 is one of the most powerful microcomputers around. Whilst not for a beginner, this kit is straight forward and easy to build. Ideal for anyone wanting to get into the world of microcomputers.

### Check these features

- Famous Z80 microprocessor as used in TRS-80 and System 80 computers
- Enormous 16k of RAM — expandable to 48k
- Inbuilt cassette interface
- Full size 60 key professional keyboard
- Inbuilt power supply

### Accessories for your Super 80 BASIC interpreter

The economical way to get your Super 80 up and running. Special BASIC language interpreter especially prepared for the Super 80.

Cat. K-3602 **save \$11<sup>25</sup> was \$24<sup>50</sup> \$13<sup>25</sup>**

### EPROM BASIC

If you don't have the time to wait for a cassette to load then the EPROM is the way to go! Super 80 BASIC in EPROM is a set of three EPROM IC's with the BASIC and monitor programs already stored inside them.

Cat. K-3604 ★ **save \$39<sup>25</sup> was \$89<sup>50</sup> \$50<sup>75</sup>**

### IC socket set

Full set of sockets for the IC's in the Super 80 kit. Highly recommended by us and by Electronics Australia. Makes construction, troubleshooting and alteration much easier.

Cat. K-3603 ★ **\$13<sup>25</sup>**

### S-100 Expansion

The logical way to go if you're going to get the most from your Super 80. Allows you to use S-100 peripherals from hundreds of manufacturers.

Cat. K-3606 ★ **\$21<sup>00</sup>**

### Character Generator

This kit features the full 96 upper and lower character set, as well as inverse video and a useful range of graphic symbols. Installation requires only one soldered connection.

Cat. K-3607 ★ **save \$18<sup>50</sup> was \$69<sup>50</sup> \$50<sup>50</sup>**

### Case for the Super 80

Specially made to fit your Super 80 and power supply components, if required. Pre-drilled and punched — a must for your computers protection.

Cat. H-3200 **\$41<sup>25</sup>**

### Transformer to suit Super 80

Many hobbyists already have on hand a suitable transformer or computer power supply, so this is NOT included in the basic kit. If you need a transformer, this one is ideal: two 12V @ 1A and one 7V @ 1A windings.

Cat. M-2325 **\$24<sup>50</sup>**

### Super 80 manuals

Your Super 80 kit comes complete with a detailed construction manual, as printed in Electronics Australia magazine. We have had two extra manuals written especially for those who wish to delve further into their computer's workings and to really get the most from this superb kit. These manuals are:

**SAVE ON AUSTRALIA'S MOST POPULAR COMPUTER KIT.**

Technical manual Cat. B-3600 **was \$14<sup>50</sup> \$9<sup>50</sup>**

BASIC Handbook Cat. B-3602 **was \$12<sup>50</sup> \$9<sup>50</sup>**





NEW FOR **83**

Now you  
can give your  
computer a voice!

## Compuvoice

The time has come for computers to speak for themselves! This speech synthesizer kit can be used with any computer that has a Centronics type parallel interface and adds a versatile, easy to use voice — with an almost unlimited vocabulary! Kit is supplied as a short form so that you can put it in any case you fancy. Moulded plastic case (Cat.H-2505) would mate with almost any computer.



**\$97<sup>50</sup>**

Cat.K-3530 ★★ SEE EA OCTOBER 1982

## Parallel/Serial Interface

Hard copy of programs and data is now easy to achieve — this Super 80 printer interface board when fully populated provides both Centronics interface and RS-232C serial port. This kit requires a Super 80 and S-100 expansion to enable you to interface with peripheral equipment such as modems, printers, etc.

**\$69<sup>50</sup>**

Cat.K-3610 ★★ SEE EA MAY 1982

## Joystick Interface

**\$37<sup>50</sup>**



This simple add-on interface attaches to the System 80 expansion connector and permits attachment of an Atari-type Joystick for graphics or games control. Adds real time action to most cassette based software suitable for the System 80. Comes complete with instructions including a demonstration program listing.

Cat.K-3455 ★ SEE ETI AUGUST 1982

## Keyboard Kit

As supplied with the Super 80. Full QWERTY keyboard with quality high tactile response keys. Each key individually switched. Suitable for all types of computer projects, etc.

Cat.K-3601 ★

**\$45<sup>00</sup>**



**SAVE TIME & MONEY**

# Dick Smith Pre-built Audio Modules

## Stereo Preamplifier FOR MAGNETIC CARTRIDGES

Complete ready-to-use RIAA preamp: simply connect power and input/output leads. Ideal for converting a ceramic or crystal player to magnetic cartridge operation.

**SPECIFICATIONS:** • Freq. Response 15Hz – 15kHz  $\pm 2$ dB • Equalization RIAA • Voltage gain: 35dB • THD 0.1% • Input impedance: 47k ohms • Output voltage: 4V max • Supply: 9–20V (1mA at 10V) • Dimensions: 95 x 40 x 19mm  
Cat F-4152..... **\$11.50**

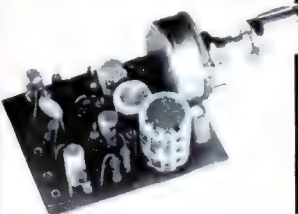


**PRE-BUILT!**  
Just connect them  
up and away they go.  
Saves time – ideal for  
building into other  
projects.

## Microphone Preamp.

A low impedance microphone preamp suitable for use with most high impedance mics. Can also be used with low imp. mics by using M-0701 line transformer. Complete with volume control and knob.

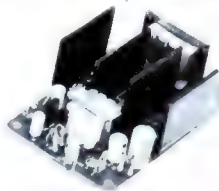
**SPECIFICATIONS:** Freq. response: 20Hz–20kHz  $\pm 1$ dB • Voltage gain: 44dB • Input impedance: 10k ohms • Output: 2 (mixed, ready for stereo amp input) • Supply voltage: 9–25V (1.35mA at 10V) • Size: 50 x 40 x 34mm  
Cat F-4154..... **\$12.50**



## 15W Audio Amplifier

Solid state amplifier with multi-tapped output transformer. Suitable for PA use, power intercom, transmitter modulator, etc., etc. Ideal also for in-car use.

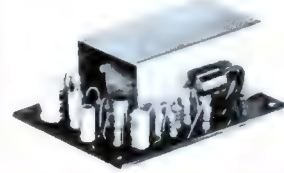
**SPECIFICATIONS:** Power Output: 15 watts max. • Input impedance: approx. 15k ohms • Input: 10mV for rated output • Frequency response: 200Hz–10kHz • Output impedance: matches 4, 8 or 16 ohms • Power supply: 12–15V DC • Current: 1.5A at maximum output • Size 100 x 60 x 35mm  
Cat F-4115..... **\$25.95**



## 5W Audio Amplifier

A four transistor amplifier with a lower power output, lower supply requirements — and lower price! Ideal as a radio amplifier, in intercoms, low power transmitter modulators, etc.

**SPECIFICATIONS:** Output power: 5 watts max. • Circuit: 4 transistor push/pull • Frequency Response: 50Hz–15kHz • Input: 20mV for 3W output • Input impedance: approx. 50k ohms • Output impedance: suits 4, 8 & 16 ohms • Power supply: 9V DC • Current 20mA (no sig) • Size 75 x 55 x 30mm  
Cat F-4105..... **\$18.95**



## Video Modulator Kit

**\$4<sup>75</sup>**

An RF modulator kit that uses just one transistor! This unit is enclosed in a small tinplate box to minimise radiation and all components are mounted on a small PCB. A very easy to build kit with many useful applications.  
Cat.K-3462 ★ SEE EA APRIL 1976



## Universal Inverter

**\$49<sup>50</sup>**

100's of uses for this fantastic inverter just by re-arranging the coil winding as explained in the instructions supplied. Any voltage available up to 1400V.

Cat.K-3276 ★★ SEE ETI SEPTEMBER 1982

NEW FOR **83**



## Fluoro Starter

**\$4<sup>50</sup>**

Does your fluorescent lights go blink, blink, blinky-blink when you switch them on? This substitute electronic starter solves that problem and gives a smooth rapid start EVERY time you switch on. And all the parts are housed in a standard starter case! Far outlasts conventional starters as well as prolonging tube life.

Cat.K-3082 ★ SEE EA OCTOBER 1982

## Short Wave Antenna Kit

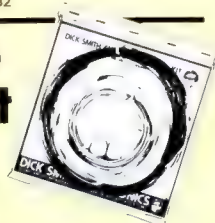
**\$10<sup>75</sup>**

Cat.K-3490 ★

**WHY SPEND HUNDREDS OF DOLLARS ON A GOOD RECEIVER IF YOU ARE ONLY USING A PIECE OF STRING FOR AN ANTENNA?**

Get the best reception from your receiver with this high quality short wave antenna —

- Designed especially for Dick Smith by a short wave expert
- Complete and ready to assemble
- Needs no soldering



**SAVE TIME & MONEY**



# Quality kits

## SAVE by building your own Power Supplies High Power Supply Hundreds of uses!

Here's a power supply that's just the thing for operating transceivers, RF power amps or anything that requires 13.8V DC (nominal) supply and pulls more amps than the general run of 'CB' type power supplies can deliver. Huge 7.5 amp continuous rating and 10 amp peak. **Cat K-3452** ★★ SEE ETI JULY, 1982.  
Comes complete with Aluminium Instrument Case



**Great Value!**  
**ONLY**  
**\$79<sup>50</sup>**

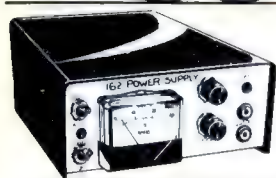
## Ideal for smaller amateur transceivers and 2 metre rigs

A big 5 amps continuous rating and 6 amp peak (depending on the heatsinks used) from this supply. Comes with all components, PCB, etc. but no 'hardware'. Build it into other equipment or make your own case to suit. Ideal for the slightly larger amateur transceivers: (FT7's, 2 metre rigs, etc). **Cat K-3449** ★★ SEE EA MAY, 1978.

**ONLY**  
**\$35<sup>50</sup>**

**NEW  
FOR**

## The DICK SMITH Variable Power Supply



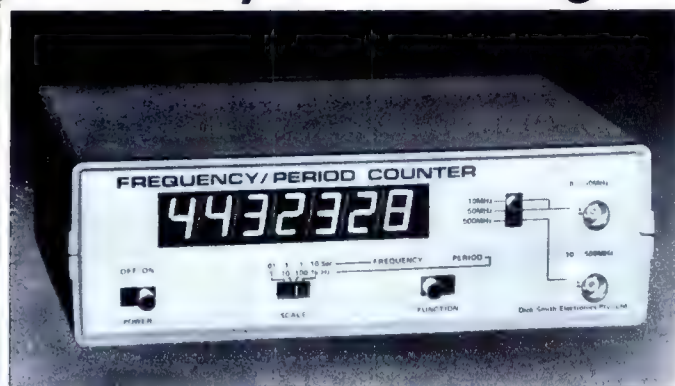
A truly functional project, giving continuously variable voltage from 1.3V to 30V. The supply also has a current capability of 1A complete with variable current limit. **Cat K-3475** SEE ETI DECEMBER 1982 ★★

**ONLY \$59<sup>50</sup>**

*"I'd rather  
build from a kit  
than buy ready-  
made – because  
I know I'm  
saving money."*



**SAVE A FORTUNE!**  
**build  
your own test gear!**



## The Dick Smith \*with optional pre-scaler Cat K-3432 500MHz Digital Frequency Counter

Superb design uses the latest IC technology. The low component count makes it very reliable and easy to build. It will measure frequency to 500MHz (with optional pre-scaler) and period both with a 7 digit resolution. It rivals the performance of commercial units costing many times the price. This kit is supplied with the exclusive Dick Smith simplified circuit board wiring, step-by-step instructions and a quality prepunched and silk screened front panel and case. **Cat K-3439** Based on EA DECEMBER 1981 design ★★

### Features include:

- ★ Professional design and finish, uses high quality instrument case
- ★ Extremely easy to build, virtually no PC board wiring and all of the switches are integrated to the display board and front panel
- ★ Huge, bright high efficiency, 7 segment display
- ★ 3 frequency ranges, 0-10MHz, 0-50MHz, 10-500MHz (with optional pre-scaler)
- ★ 4 gating times, 0.1, 1, 10 seconds
- ★ 4 period measuring ranges, 1, 10, 100 and 1000 input cycles to give a 0.1 us resolution
- ★ High input sensitivity, 10mV to 30MHz, 10mV to 50MHz @ 1M input impedance
- ★ High accuracy, typically better than .005%

**NOW INCLUDING  
DICK SMITH  
EXCLUSIVE  
MOULDED CASE  
ONLY**

**\$115<sup>00</sup>**  
(50MHz version)

## Accessories for your counter:

### Pre-scaler

Improve the performance and increase the range of your K-3439 Frequency Counter to a more professional range of operation 10-500MHz. This kit adapts easily to the existing frequency counter PC board. **Cat K-3432** ★  
SEE EA FEBRUARY 1982

**ONLY**  
**\$31<sup>50</sup>**

**... so for under \$150 you can have a  
professionally styled 500MHz counter  
... a total cost of only \$146.50**

## Low distortion audio oscillator



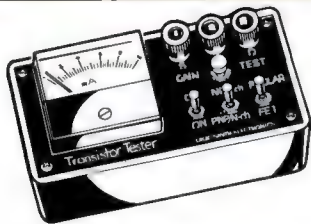
Uses the characteristic low noise of a VMOS device to give an ultra-low distortion output. All the components mount on a single PCB and construction is really quite straightforward. The kit comes in a sturdy chassis (Musicolor III type) with a deluxe black perspex front panel, silk screened with white lettering. LED power indicator also acts as a dial marker. Supplied with attractive silver knobs.

**Specifications:** Frequency Range: 15Hz-150kHz • Output Attenuator: 10dB steps from 3V to 3mV • O/P Adjustment: 10dB • Distortion: .003% midband **Cat K-3467** SEE EA JUNE 1981 ★★

**SAVE  
ON  
BUILT  
UPS!**

**ONLY**  
**\$67<sup>00</sup>**





## speedy fault finding Transistor Tester

Not just another Transistor Tester! This one tests bipolar transistors, diodes, F.E.T.'s and even S.C.R.'s and P.U.T.'s. This practical low-cost test instrument is simple enough to be built by a beginner and then provide him with a valuable piece of test equipment. You can get experience in building, then use it to learn about the operation of semi-conductors, or use it for more serious checking. Ideal for the beginner and serviceman alike, or in schools. Battery operated and supplied with one of our new 50mm meters in a deluxe 'Zippy' case. Requires 9V battery Cat S-3006 50c extra Cat K-3052 \*

Amazing Value **\$19<sup>75</sup>**

SEE EA JULY '78

## Turn your old TV into a CRO!

Got an old B&W TV gathering dust in the corner?

Turn it into an audio CRO! That's right: this remarkable kit turns any surplus B&W (or even surplus colour) TV set into a 300kHz audio oscilloscope! It gives a good display at low frequencies, making it ideal for hi-fi & audio display applications. All it needs is 100mV to drive it to full screen deflection. The large screen size means that it gives a dramatic display: just think of the nontechnical applications of such a device: promotions, hi-fi showrooms etc. If you can't afford a proper CRO - this could be the answer!

Cat K-3060 \*\*

SEE EA MAY '80

Yes, your own CRO  
for ONLY

**\$29<sup>95</sup>**



NEW  
FOR **83**

## LCD Panel Meter

A versatile accurate panel meter using a large liquid crystal display for low power consumption. The PC board design allows for maximum flexibility to cater for varied mounting arrangements. The low cost makes it ideally suited as a readout device on many projects, at both amateur and professional level. It may be considered as a viable replacement for conventional existing analogue equipment.

Cat K-3450 \*

### FEATURES

**Display:** 3½ digit LCD  
**Full scale reading:** 200mV  
**Accuracy:** less than 1 digit  
**Resolution:** 100uV  
**Polarity:** automatic  
**Input impedance:** greater than  $10^{12}$  ohms  
**Input bias current:**  $\pm 2$  pA  
**Conversion method:** dual slope  
**Reference:** internal 100ppm  
**Power supply:**  $\pm 5$  V to  $\pm 15$  V dc  
1 mA @  $\pm 5$  V



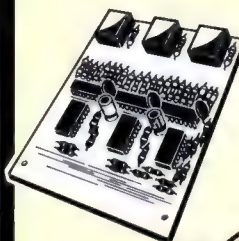
ONLY **\$29<sup>50</sup>**

## 3 digit Counter

The most versatile counter circuit around - you can use it for a huge variety of applications with a minimum of external components. Designed for maximum flexibility (display can be removed for external mounting) and with a very wide operating voltage (5 - 15V).

**Features include:** Up/down counting, pre-settable counters, display latch facility, clock enable, synchronous or asynchronous mode, medium speed clock rate, separate display board if required, single board or modular assembly, maximum flexibility of operating modes, wide power supply range, and low cost.

Cat K-3451 \*

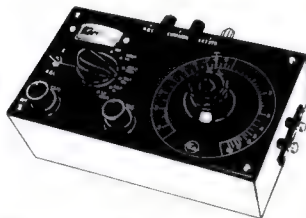


**\$29<sup>50</sup>**

**NEW LOW PRICE**

**\$17<sup>95</sup>**

## R-L-C Bridge



Measure the values of new and used components easily and simply. You can measure resistance, (10 ohms to 10 Megohms), capacitance (10pF to 10uF) and inductance (down to a few hundred microhenries). The RLC bridge does more than a multimeter, and is easy to use. The complete kit of parts includes a specially printed front panel. Battery not supplied

Cat K-3468 \*\*

Measures unknown components at only **\$37<sup>50</sup>**

SEE EA MARCH '78



NEW  
FOR **83**

## Function Generator

An essential piece of test and design gear for all hobbyists, amateurs, service technicians, engineers... produces sine, triangle and square waves from below 20Hz to 170kHz with a very wide range of output levels too. An ideal companion to our other build-it-yourself test equipment. Case shown is optional (Cat H-2505 at \$10.50).

### CHECK THESE FEATURES

- Frequency range from below 20Hz to 170kHz in three ranges
- Continuously variable output level from 3mV to 2.5V peak-peak.
- 600 ohms (nominal) output impedance.
- Sine, triangle and square waveforms.
- Sine wave distortion of less than 0.7% at 1kHz; 1% at 10kHz and 2% at 100kHz.
- Triangle wave linearity better than 1% at 1kHz.
- Square wave rise-time of 0.4us (6V/us at maximum output level).

- Negligible overshoot, droop or ringing.
- Readout accuracy  $\pm 2\%$   $\pm$  one digit.
- Amplitude stability better than 0.1dB on all ranges.
- Power consumption of 7W at 240V AC.

SEE EA APRIL '82

Cat K-3520 \*\*

Amazing Value at **\$52<sup>50</sup>**

Case Cat H-2505 **\$10<sup>50</sup>**

## Sine & Square wave Oscillator

Covers frequencies from 15Hz to 150kHz. This is one of the most useful pieces of equipment on the experimenter's bench. This simple design is easy to build and a great performer. Runs from a 9V battery. All parts are supplied including specially printed front panel, attractive 'Zippy' case and full instructions.

Battery not included.  
Cat K-3469 \*\*

**\$37<sup>50</sup>**



SEE EA JUNE '78

## NOW IN MK III VERSION DRILL SPEED CONTROL



Get the most from your electric drill! This unit enables your drill to be slowed down to the point where it can be used to drill large holes in metal or even be used as a screwdriver. New circuit gives good torque at very low speeds. Suitable for most 240V universal brush-type motors, up to 3A rating, such as drills, circular saws, food mixers, etc. The kit is supplied complete with everything necessary. Easy to build, special instruction sheet, rugged moulded case with special strong Mariplate front panel that has been pre-punched. A must for the home handyman.

SEE EA JULY '76

Cat K-3080 \*

for only **\$13<sup>95</sup>**



# Quality Kits

## Lotto/ Pools Selector

If you fancy your chances but can never decide which numbers are the lucky ones, throw caution to the wind and let an electronic marvel decide for you! Makes it all so easy! Comes with a large LED display and front panel label. Get rich with a push of a button! Good luck!

Cat K-3392 ★

REF: EA JUNE 1981

ONLY  
**\$19<sup>95</sup>**

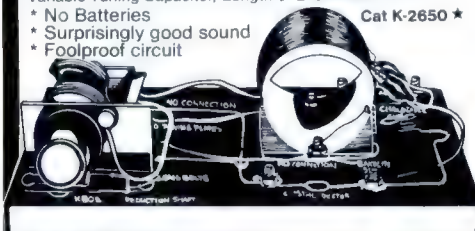


## DICK SMITH EXCLUSIVE The Dick Smith Crystal Set

A most satisfying project that will give you lots of fun. It can pull in a surprising number of broadcast stations and produce good sound even when connected to a stereo system. And surprise surprise, it even works during blackouts! All parts supplied (except earphone). Baseboard, Coil Former, Hardware, Self Adhesive Connection Diagram, Variable Tuning Capacitor, Length of Enamelled Wire.

- \* No Batteries
- \* Surprisingly good sound
- \* Foolproof circuit

Cat K-2650 ★



**AMAZING  
VALUE** **\$7<sup>95</sup>**  
REF: EA APRIL '82

### Phones

**Crystal Earpiece**  
High impedance earpiece with 3.5 mm plug. Budget priced!  
Cat C-2765 **\$1<sup>75</sup>**

**TO SUIT  
ABOVE KIT**

**Magnetic phones**  
High impedance. Ideal for your crystal set. As used by spies everywhere.  
Cat C-4000 **\$7<sup>95</sup>**

## Build your own electronic game! Leds & Ladders

This has to be one of our most popular novelty kits. A game of skill which is not only a lot of fun to play, but which also gives you a chance to improve your reflexes. Can you climb out of the well without getting dumped back in? Easy to construct, the kit comes with all parts required and full instructions. Also included is a specially printed foil label for the box. A great kit to build.

Cat K-3390 ★

REF: EA JULY '80

★ ★ ★  
VALUE AT  
**\$16<sup>50</sup>**  
★ ★ ★



## Electronic Door Chime

...will amaze your friends!

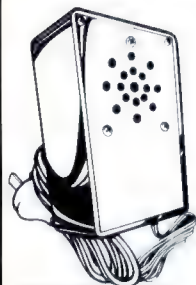
ONLY  
**\$31<sup>00</sup>**

WOW! An electronic door chime based on the latest microprocessor technology! An exclusive design, this unit plays a different tune every time you press the front door button. Perhaps you like one tune in particular, this is also possible. This kit contains all parts necessary to build the project.  
Cat K-3502 ★★

Look at these tunes

REF: EA SEP 1979

● Westminster Chimes ● Greensleeves ● Maryland ● Oranges and Lemons ●  
Sailors Hornpipe ● Cookhouse Door ● Colonel Bogie ● Beethovens 9th ● William  
Tell Overture ● Soldier's Chorus ● Fate Knocking ● Bach ● Mozart ● Lorelei ●  
Great Gate of Kiev ● Oh Come All Ye Faithful ● God Save The Queen ● Rule  
Britannia ● Land of Hope and Glory ● Stars and Stripes ● Marseillaise ●  
Deutschland Uber Alles



## Super Siren



A GREAT  
LITTLE SCREAMER

This siren has got an ear-splitting sound yet it is compact and draws very little current. It uses a piezo-electret tweeter, which can be soldered directly to the PC board. Has many uses: as an equipment malfunction alarm, intruder alarm, car alarm (separately powered and not dependent on the car battery).  
Cat K-3505 ★ SEE EA NOV '82

ONLY **\$19<sup>95</sup>**



**SOUNDBENDER**  
SAVE \$5  
WAS \$29.50  
ONLY  
**\$24<sup>50</sup>**  
REF: ETI FEB '82

With this great little kit you can sound like a Dalek, a Darth Vader, a Cylon, or any one of a dozen robotic spin-offs! A versatile unit, it may also be used for special effects on electric guitars and other musical equipment.  
Cat K-3509

**BONUS!  
TIGER MOTH  
SOUND AT  
NO EXTRA  
CHARGE!**

## Simple Sound Effects

One of the attractions of the more sophisticated video games seen in 'fun' arcades these days is the realistic array of sound effects that go with the action - gunshots, bombs, whistles and explosions, etc. This simple group of projects employs just one IC that does all the hard work.

Cat K-3508 ★

ONLY  
WAS \$17.50 **\$14<sup>95</sup>**



REF: ETI MARCH '82

## Music Generator

This is a great little kit for the beginner or the experimenter. It uses a very special IC which is pre-programmed with two popular tunes: 'Green Sleeves' and 'Home On The Range'. It also has the popular 'dingdong' (to scare the Avon Lady), plus an alarm tone (to scare would-be thieves). A few more components and a printed circuit board complete the kit. It plays the complete melody - including chords (not just a few bars like other IC's). It is intended for novelty or alarm applications. With a suitable amplifier it could be used as a singing doorbell. Cat K-3512 ★

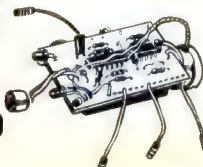


ONLY **\$12<sup>90</sup>**

## Electronic Cricket

Here is a cute little insect imitator that's bound to be a conversation piece - once he's been unearthed! Easily constructed, he speaks when others do and flashes his eyes impressively. But just try to find him! When all is quiet, he doesn't make a sound. Cat K-3397 ★

REF: EA FEB '82



ONLY **\$12<sup>50</sup>**





## Upgrade to mosfets! PLAYMASTER Mosfet Amplifier

Here is a 'Top of the Line' amplifier that you can build as a kit! Uses up to the minute circuitry as well as the new MOSFET output stage. With a huge 50W/channel output, it's got everything that you'll ever need in an amplifier. Although the professionally designed front panel makes it look good, it's what's under the hood that makes it sound great! All components fit to a single PCB, which makes construction very easy. The sturdy chassis and solid heatsinking make the unit ruggedly reliable. And you get all of the parts you need - right down to the last nut and bolt. Comprehensive step-by-step instructions are provided, so you should get it going first time. If you have any problems, there is, of course, the 'Sorry Dick, It Doesn't Work' coupon, so you are covered.

### Features include:

- ★ LED indicated input
- ★ Loudness control
- ★ Muting control
- ★ Full speaker switching facility
- ★ Stereo/Mono switching
- ★ Tape monitor switch

### Specifications:

Power output: 55W - Frequency response: 30Hz to 20kHz - Hum and noise: -73dB unweighted - THD @ full power: less than 0.2%, at normal levels less than 0.05%

Cat K-3515 SEE EA JANUARY 1981

★★★

OUR MOST POPULAR KIT!

ONLY \$175

# PLAYMASTER

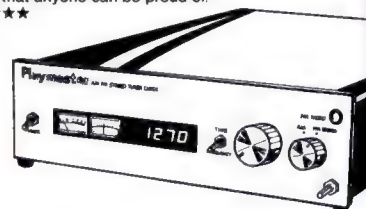
## AM/FM Tuner/Clock

The Playmaster Tuner has a digital readout to indicate the frequency to which it is tuned, a feature found only in the most expensive tuners. At a flick of a switch the digital readout displays the time which remains on, even when the tuner itself is off. Other features include back-lit meters for signal strength and tuning, adjustable ferrite rod antenna for AM and switchable FM muting. The kit is complete right down to the factory assembled and tuned tuner module - all the hard work is done for you! A specially produced 32 page construction and instruction manual goes with each kit. The result is a project that anyone can be proud of!

Cat K-3494 SEE EA NOVEMBER 1978 ★★★

COMPARE  
OUR PRICE!

\$159<sup>50</sup>



## Graphic Equaliser

Get total control and flexibility with your sound system. With cut and boost of up to 13dB per channel you can make up for deficiencies in your listening area (or sound source) or even create special effects. (Big, booming bass; bewdy!) You can even make equalised tapes of those precious records. Features professional quality brushed aluminium front panel.

### Specifications:

Freq response (Eq. 'IN'): 10Hz to 10kHz.

Boost & Cut: max 13dB.

Steps: 10 in each stereo channel (individually controllable).

Cat K-3500

SEE E.A. MAY, 1979.



ONLY \$99<sup>50</sup>

# PLAYMASTER YOUR GUARANTEE OF QUALITY

## Musicolor Mk IV



The latest model Musicolor combines all the features of Musicolor III and Light Chaser plus much more. Chaser plus 4 chase patterns plus automatic and reverse modes for startling effects. Four channel Musicolor adds a new dimension to sound - light! Built-in microphone allows any sound to trigger Musicolor. Comes with sturdy chassis and exclusive Dick Smith front panel with LED display. Detailed step-by-step instructions are supplied.

Cat K-3143 SEE EA AUGUST 1981

★★★

Why Pay More?

\$91<sup>50</sup>



## Massive Music Power! 300 Watts RMS Amplifier



Don't  
Pay \$1000  
Or More For  
Built Ups!

AND ONLY  
\$72

300 WATTS INTO 4 OHMS  
200 WATTS INTO 8 OHMS

This fantastic amplifier kit gives you tremendous scope for boosting the output of your existing sound system - use one module to produce 300 WATTS RMS into 4 ohms or two units to give you a truly massive 600 WATTS RMS continuous power. This is the ideal unit for public address, rock groups, etc; or where high power is required. Kit comes complete with all components and instructions. Simple to build, this kit is easily suited for mounting in a standard rack mounting case either singly or in pairs. You will require an M-0150 transformer and one or two H-3426 heat-sinks, depending on light or heavy use.

Cat K-3444 SEE ETI FEBRUARY 1980

★★

Not including transformer or heatsink

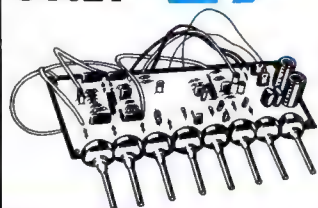
## Mixer Preamp

Designed to suit the 300W amp kit, this mixer preamp has 4 inputs with an impedance of 100K - suitable for most microphones, guitars, etc. Ideal also for use with 50W (K-3440) and 100W (K-3442) power amp modules. This unit provides bass, treble and presence control. Instructions supplied. Not supplied with transformer, case or power wiring.

Cat K-3035 SEE ETI JULY 1980

★★

ONLY \$29<sup>50</sup>



## LED Level Meter

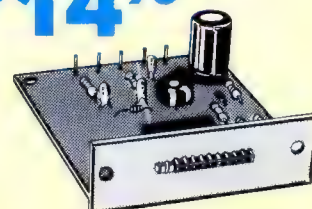
One unit will display the sum of the peak channel output voltages (power) or use two for separate stereo readouts. 10 green LED's for display, 1 yellow for max. power and 1 red for overload. All solid state mounted on a small PCB with readout at right angles for easy mounting in a cabinet. Requires 10V-16V AC or DC at 50ma.

Cat K-3370 SEE EA JUNE 1976

★

VALUE AT  
ONLY

\$14<sup>95</sup>

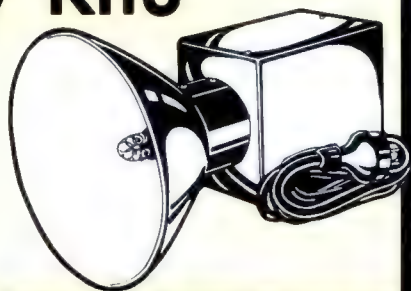




# Quality kits

give your  
party life!

The  
**DICK SMITH**



# SAVE \$\$\$\$

## When you build your Playmaster Speaker system

Dick Smith brings you these superbly styled, acoustically designed speaker systems to suit your room, your decor – and even your pocket! Manufactured under meticulous quality control, these speakers meet the exacting standards of the original Electronics Australia specifications

We're proud of these outstanding speakers, as you will be when you hear them perform for you. The superior design doesn't end with the strikingly handsome grilles and woodwork. Special steps have been taken to ensure these Playmaster speakers meet or exceed the standards of commercial speakers – the ones you'd pay hundreds of dollars more for!

You save with Playmaster speakers because YOU supply the roughly two hours of simple labour to put them together. All that's required are a couple of hand tools and a tube of glue.

The result is MIND-BLOWING!

Designed by Neville Williams, MIREE (Aust).  
Editor-in-Chief of Electronics Australia magazine

## LIGHT SHOW STROBE

A must for parties, dances and discos. This has been an enormously popular kit for some time. Now we have had a special printed circuit board made, which makes the unit ridiculously simple to build. Provision has been made on the PCB so that extra parts for the optional second tube can be added simply and economically. Kit includes a new 180mm photographic type reflector, which is specially modified so the new perspex safety guard which is supplied can be easily fitted. Special new instructions are included. Kit comes with super long life heavy duty storage capacitors. Timing control allows flash rate to be varied between one and twenty flashes per second.

SEE ETI SEPT '79

Cat K-3152 ★★

ONLY  
**\$35<sup>50</sup>**

## HIGH POWER ETI AMP 100 Watt Amp Module

100 watts RMS. 5kHz–50kHz at 100dB signal to noise ratio. That's the ETI 480 amplifier. The ultimate in simplicity, even the power transistors mount on the one PCB. The PCB heatsink bracket is supplied, and the heavy duty fibreglass PCB has a silk-screened overlay to make construction even easier! The design is based on the time-proven reliable ETI 422 power amplifier without the power transistor wiring hassles. Ideal for the home constructor or technician who wants to 'roll his own' amplifier system for the home or professional use. Has on-board fuse protection. Input sensitivity: 1V. Use with K-3438 power supply.

SEE ETI DEC '76

Cat K-3442 ★★

for only  
**\$25<sup>00</sup>**



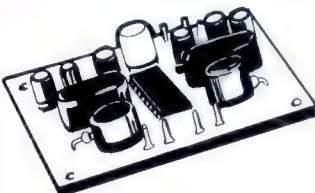
## 50 Watt Amp Module

Ideal for home stereo systems. Same design simplicity as the 100 watt module above, but cheaper because of lower power. And there's added economy as two units can be run from the one K-3438 power supply. An economical solution for those who want to update their old system without a huge outlay of money. The compact design makes this module the obvious choice wherever a medium power general purpose amp is required. Input sensitivity is 500mV. Supplied with exclusive instruction booklet and rugged fibreglass PCB with silk-screened component overlay for easy assembly. Heatsink bracket is supplied but heatsink itself is extra.

SEE ETI DEC '76

CAT K-3440 ★★

ONLY  
**\$19<sup>95</sup>**



## General purpose Stereo Preamplifier

AND ONLY  
**\$8<sup>90</sup>**

This amazing versatile unit can be built as a magnetic cartridge preamp (for upgrading your stereo), a tape preamp or an auxiliary preamp with 40, 55 or 80dB gain. It is extremely simple – uses only one special IC and is very small – all parts fit on a PCB less than 65mm square. It does not need a special power supply as any reasonable power supply from 10 to 40V will do. Frequency response is well beyond 20kHz, and full instructions are supplied.

SEE ETI JULY '76

Cat K-3427 ★

## ETI 480 PS Power Supply



Full PCB and component kit for one K-3442 or two K-3440 modules. Supplied complete with speaker de-thump relay and Zener regulated plus & minus 15V preamp rails. Special assembly instructions supplied.

SEE ETI DEC '76

Cat K-3438 ★

VALUE **\$19<sup>95</sup>**

## Heatsinks for these modules

Imported just to suit these amplifier modules. Finished in matte black with radial pattern fins for optimum efficiency.



Cat H-3422  
75mm long, ideal for the 50 watt module.

**\$3<sup>25</sup>**

Cat H-3426  
A whopping 225mm long, more than enough for the rigours of the 100 watt module.

**\$9<sup>75</sup>**

## speaker protection kit



**\$14<sup>50</sup>**

That 'thump' you hear when turning your amplifier off represents a massive overload. Our speaker protector is a time delay circuit which delays connection at turn on and removes it at turn off. Easy to build and suits most amplifiers.

Cat K-3425 ★

SEE EA MAY '76

## NEW FOR



## PERCUSSION SYNTHESIZER

AMAZING  
VALUE

Now you've got rhythm – with this percussion synthesiser. Produces the sound of drums, cymbals, snares and bongos. You can play manually or by total electronic control. Add a sequencer, and you can have automatic rhythm. Just right for learning the basics of timing.

SEE ETI MARCH '82 ★★ Cat K-3517



**\$47<sup>50</sup>**

## PERCUSSION SEQUENCER

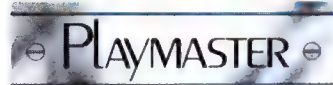
How's that for a great kit! Single PCB kit enables percussion synthesizer (above) to be controlled externally by this rhythm generator, and it does it automatically! You could start your own band! Also useful for taping and dubbing.

SEE ETI JUNE '82 ★★ Cat K-3518

**\$12<sup>50</sup>**



# ON A SPEAKER SYSTEM

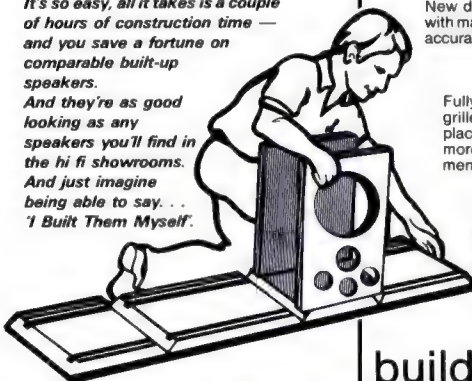


Manufactured to the exacting standards of the original design published in Electronics Australia magazine.

See how easy they are to build...

It's so easy, all it takes is a couple of hours of construction time — and you save a fortune on comparable built-up speakers.

And they're as good looking as any speakers you'll find in the hi fi showrooms. And just imagine being able to say... 'I Built Them Myself'.



Your choice of three different sizes of enclosure: from the large 70 litre, down.

Separate level controls for high and mid ranges: tailor the sound to suit your listening environment. (300mm system only)

All-new design in attractive woodgrain finish. They'll complement any decor!

Special speaker sealant material supplied to ensure absolute air tightness.

New design ribbed woofer with massive 30cm cone for accurate bass reproduction.

Fully imported contoured grilles that simply push into place on special clips: no more grille rattle or movement.

Built-in plinth to raise the speaker off the floor level for minimum audio colouration.



Acoustically transparent silk-like grille cloth, heat welded to support frame. All the hard work is done for you already!

Haven't time to build them yourself?

Haven't the time — or inclination — to build your own speakers? Don't worry: you can still obtain the outstanding reproduction and superb appearance of these Playmaster speakers: see the built-up versions (70 and 50 litre versions only) on Page 44

## 200mm SPEAKER SYSTEM

Enclosure size: 26 litres

Speaker Grille (Cat C-2608)	\$31.90
Enclosure Kit (Cat C-2636)	\$127.10
Speaker Kit (Cat C-2046)	\$89.50
Complete 200mm Speaker Kit	

**\$248<sup>50</sup> per pair**

## 250mm SPEAKER SYSTEM

Enclosure size: 53 litres

Speaker Grille (Cat C-2610)	\$35.90
Enclosure Kit (Cat C-2634)	\$148.10
Speaker Kit (Cat C-2044)	\$149.00
Complete 250mm Speaker Kit	

**\$333<sup>00</sup> per pair**

## 300mm SPEAKER SYSTEM

Enclosure size: 70 litres

Speaker Grille (Cat C-2612)	\$39.90
Enclosure Kit (Cat C-2632)	\$165.10
Speaker Kit (Cat C-2042)	\$155.00
Complete 300mm Speaker Kit	

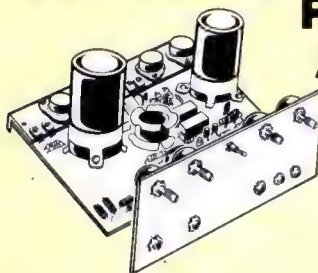
**\$360<sup>00</sup> per pair**

3/26L: Peak power handling: 40W. Impedance: 8 ohms. Freq response: 45Hz to 20kHz. Speakers: 200mm woofer, 125mm midrange & 64mm tweeter. Crossover: 3 way, at 1.5kHz & 5kHz. Dimensions: (cm) 64 x 38 x 29.6

3/50L: Peak power handling: 60W. Impedance: 8 ohms. Freq response: 35Hz to 20kHz. Speakers: 250mm woofer, 125mm midrange & 64mm tweeter. Crossover: 3 way, at 1.5kHz & 5kHz. Dimensions: (cm) 71 x 38 x 29.6

3/70L: Peak power handling: 80W. Impedance: 8 ohms. Freq response: 28Hz to 20kHz. Speakers: 300mm woofer, 125mm midrange & 64mm tweeter. Crossover: 3 way, at 1.5kHz & 5kHz. Faders: plus/minus 2dB high and midrange. Dimensions: (cm) 77.5 x 44 x 29.6

NEW FOR



**150W Mosfet PA/Guitar Amplifier**  
**Think of the uses!**

Guitar and public address amplifier utilising ETI's 499 Mosfet 150 watt power amplifier module as published in ETI March, 1982. Comes complete with pre-amp PCB and special Hitachi mosfets 2SJ49 and 2SK134. Also includes on board power supply, just add transformer (PF4361/1 Cat M-0153). Cat K-3525 SEE ETI MARCH 1982 ★★

**Amazing Value! \$119**

Dick bulk buys and you save

## STEREO SYNTHESIZER

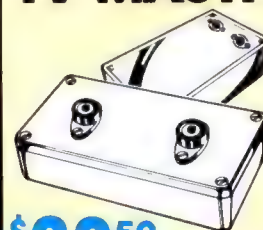
If you've compared mono and stereo sound, you'll be aware of the advantages of stereo reproduction. Now you can enjoy the benefits of stereo sound from your video cassette recorder, TV or AM tuner with this Stereo Synthesizer. Easy to build, you can choose between normal and synthesized stereo sound and between two different monophonic sound sources. Cat K-3420 ★★ SEE EA SEPTEMBER 1982

**VALUE ONLY**

**\$52<sup>50</sup>**



## TV MASTHEAD AMP



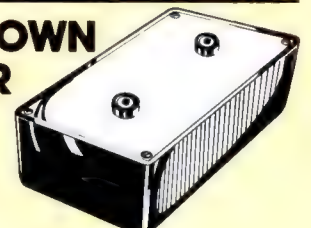
**\$33<sup>50</sup>**

Why put up with poor TV reception when you can improve your TV's picture with this easy-to-build kit.

**Features:**  
Can cut out snow effect in low signal areas — Can reduce 'ghosting' effect caused by multiple signal pickup from feeder cables — Good for home unit operation where signal at TV wall outlet is poor — Can be used for the new UHF service — Ideal for boosting FM signals as well — Uses latest OM350 hybrid wideband op amp IC — Works from 240V supply included — Instructions included. ★ Cat K-3232 SEE EA AUGUST 1979

## UHF/VHF DOWN CONVERTER

**Ideal for UHF VCR's too!**



Convert any TV signal (or video cassette recorder) in the UHF band down to an unoccupied channel in the VHF band. If your TV set does not have a UHF tuner and you would like to watch UHF, then this is the kit for you. Comes with double-sided PCB, BNC connectors and complete instructions.

Cat K-3235 SEE EA MAY 1981 ★

**ONLY \$33<sup>50</sup>**



# Quality Kits

Find out about  
Electronics the Fun Way  
with these top value

## FUN WAY KITS

Why don't YOU join the many thousands of people - young and old - who have started out in electronics the FUN WAY!



### Special Fun Way Value Packs

#### Volume 1 Value Pack

Over \$20.00 worth of value! You get the two Vol.1 kit packs (as shown to the right) plus a copy of Fun Way Volume 1. 20 exciting projects for you to build ranging from a beer powered radio to an electronic siren. Completely safe, no need to solder, suitable for all ages. Hours of fun building educational projects. Find out what electronics is all about - the easy way.  
Cat.K-2615



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#### Volume 2 Value Pack

Fantastic savings! Over \$25.00 worth of value! Everything you need to build an actual working project. Includes a hobbyist soldering iron and a pack of solder, a 9 volt battery, a copy of Fun Way Vol.2 and a wireless microphone kit. The 'Fun Way Vol.2 Gift Pack' makes electronics fun, easy and now economical!  
Cat.K-2620



\$19.95

### Vol.1 KITS 20 Projects to build

#### Kit to build projects 1 — 10

You can build any of the first ten projects from 'Fun Way Into Electronics' with this kit. It even includes the base board on which you assemble the circuits! Kit includes: 2 transistors, 7 capacitors, 2 LED's, a diode, a light dependant resistor, 23 resistors, a speaker, battery clip, base board, wire & self tapping screws.  
Cat.K-2600

\$7.25

#### Kit to build projects 11 — 20

This kit contains the slightly more specialised components which, together with the components from kit 1, will enable you to make any of the projects in the book. The kit includes: An integrated circuit, 11 capacitors, including a variable type, potentiometer, a resistor, ferrite rod aerial, a crystal earphone, an audio transformer and 70cm of hook-up wire.  
Cat.K-2610

\$7.90



INCLUDES THE  
FAMOUS  
BEER POWERED RADIO

#### PARENTS PLEASE NOTE:

ALL FUN WAY INTO ELECTRONICS KITS ARE BATTERY POWERED SO THEY ARE COMPLETELY SAFE. ALSO FUN WAY VOL 1 KITS REQUIRE NO SOLDERING

### Vol.2 KITS from \$2.95

You've built the twenty projects in the Fun Way Volume 1 and you're ready for something new! Something bigger and better! Something more exciting... Here it is: **FUN WAY VOLUME 2**. These projects are at a higher level than the ones in Fun Way 1. For a start, they're all made on printed circuit boards. Don't know how to solder? Don't worry, Fun Way Vol. 2 will show you how. And much more - like how to use a multimeter. How to actually make your own printed circuit boards. And lots of interesting information about the pioneers of radio and electronics. And in the back of Fun Way Vol. 2 are specially printed labels to make your projects look really professional! PLEASE NOTE: The kits below do not include instructions (including these in each pack would have added considerably to the kit cost.) All the instructions are in the book itself.

#### FLASHER

A really simple kit using two transistors and one light emitting diode (LED) to produce a flashing light that can be used to simulate a car burglar alarm or to make an electronic brooch.  
Cat.K-2621

\$2.95

#### DING-DONG DOORBELL

Delight your family and friends with the project designed around the NE555 timer.  
Cat.K-2622

\$4.50

#### MORSE CODE TRAINER

This simple oscillator circuit coupled to a small speaker makes an ideal Morse code trainer (when used with a suitable Morse key). It may also be used as an audible alarm.  
Cat.K-2623

\$4.50

#### UNIVERSAL TIMER

Use as an egg timer, photographic or process timer etc. For times from a few seconds to 15 minutes. May be used to switch ON or switch OFF and operate a relay, speaker or buzzer.  
Cat.K-2624

\$5.50

#### ELECTRONIC DICE

This fascinating circuit uses six LED's connected to the output of a 4017 IC which is pulsed by a NE555 timer IC to simulate electronically the roll of a dice. You'll have hours of fun building it and playing it. A simple change to the circuit converts it to a continuous sequential flasher which can be used imaginatively to make an electronic brooch.  
Cat.K-2625

\$4.95

#### MONOPHONIC ORGAN

Understand the basics of music synthesis by making this simple two octave organ and then teach yourself to play. Printed circuit board has been designed to fit as the lid of a box to make a convenient and fully portable instrument.  
Cat.K-2626

\$7.95

#### POCKET TRANSISTOR RADIO

Although very simple to build, the performance of this little set is as good as most of the small transistors available in shops. Building it will help you to learn about radio and give hours of fun listening, combining it with an amplifier to produce greater volume and designing it to fit into smaller and smaller places.  
Cat.K-2627

\$7.95

#### TOUCH SWITCH

Using the 7473IC, this circuit introduces the basics of switching logic and has literally dozens of applications where touch switching, local and remote, is required. May be used as a touch on/off, or as on while touched only. Has industrial applications as well as novelty uses.  
Cat.K-2628

\$5.50

#### MOSQUITO REPELLER

This ingenious device uses a unijunction transistor in a circuit designed to produce a frequency of 21-23kHz. This is outside the human audio range but right on the frequency that male mosquitos emit. As pregnant mosquitos, the only ones who bite, are repelled by males they will keep away from the repeller and you. Great fun to build and use!  
Cat.K-2629

\$4.95

#### INTERCOM AMPLIFIER

Although designed for use in the intercom project, this amplifier can be used in many places, from an amplifier for your radio to a public address amplifier or megaphone. You'll have hours of fun finding new applications in addition to the uses suggested in FUN WAY INTO ELECTRONICS VOL.2.  
Cat.K-2630

\$6.50

#### WIRELESS MICROPHONE

Make this one into a tiny package and slip it into your pocket to give you total freedom to move about while speaking or performing. May also be used to listen to baby by placing it by the cot and tuning in your FM radio in another room. Designed to work on the same principle as the well known 'spy bugs'.  
Cat.K-2631

\$6.50

#### LIGHT ACTIVATED SWITCH

Designed around the light dependent resistor, this device has many uses to make your life easier and safer. Use it to switch on an alarm when an intruder turns on the lights... or to switch on the light at sunset so that your home looks occupied Or as a shop door alarm, or a door protector - the only limit is your imagination. Fun to build and use.  
Cat.K-2632

\$5.50

#### METAL/PIPE LOCATOR

Now you can join the gold rush and learn about electronics at the same time by building this metal detector using the CMOS 4001 IC. Handy-men will find it extremely useful for locating pipes and electric cables before digging holes or drilling in walls.  
Cat.K-2633

\$6.50

#### SOUND ACTIVATED SWITCH

Using a sensitive electret microphone insert, this device is ideal as an alarm pick-up to actuate a bell or light at the first sound of intrusive noises. It may also be used as an extension bell for your telephone without breaking PBT regulations. Easy but fascinating to build and use.  
Cat.K-2634

\$6.95

#### HOME/CAR ALARM

This very practical circuit will teach you about electronics and at the same time provide you with an efficient alarm circuit for your home and car. May be used with any number of normally open or normally closed contacts.  
Cat.K-2635

\$6.50

#### ELECTRONIC SIREN

The ideal project for providing the audible alarm for home and car circuits. Using two NE555 IC's this circuit can be easily modified to produce a variety of sounds.  
Cat.K-2636

\$4.95

#### LED LEVEL DISPLAY

Build this project and obtain a graphic indication of the output of your radio or hi-fi system. You might like to build two - one for each channel of your stereo system. Power level is displayed by ten red LED's. Easy to build with direct practical applications.  
Cat.K-2637

\$8.95

#### INTERCOM UNIT

Now you can build your own intercom unit using a simple circuit and the intercom amplifier described above. Enables you to communicate between rooms and to out buildings. An interesting and useful project that will increase your knowledge of electronics.  
Cat.K-2638

\$8.95

#### LED COUNTER MODULE

This fascinating project will introduce you to the workings of the 7 segment digital display. Using 7490, 7475 and 7447 IC's, it's easily adapted for industrial applications such as component counting as well as numerous other counting applications. A reasonably complex circuit that will build your confidence and increase your enjoyment in electronics.  
Cat.K-2639

\$7.95

#### SHORT WAVE RECEIVER

Using a 4007 integrated circuit you can now build a short wave radio that will enable you to tune in to foreign radio stations or, with simple adjustments, to a variety of Amateur, Police, Marine or Air radio. Easy and fun to build and will greatly expand your knowledge of radio.  
Cat.K-2640

\$6.95



## DATA INDEX

The following section is included for your convenience and reference. It contains data for many common semiconductors, wiring, audio information, amateur radio listings, charts and tables. Keep your catalogue in a safe place so this handy reference is at your fingertips when required.

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## HANDY REFERENCE CHART FOR IMPERIAL TO METRIC CONVERSION

HANDY REFERENCE CHART FOR IMPERIAL TO METRIC CONVERSION			Inches		Decimal	Millimetres	Inches		Decimal	Millimetres
			17/64		.265625	6.7469	41/64		.640625	16.2719
			9/32		.28125	7.1437	21/32		.65625	16.6687
			19/64		.296875	7.5406	43/64		.671875	17.0656
			5/16		.3125	7.9375	11/16		.6875	17.4625
			21/64		.328125	8.3344	45/64		.703125	17.8594
			11/32		.34375	8.7312	23/32		.71875	18.2562
Inches			23/64		.359375	9.1281	47/64		.734375	18.6531
Decimal			3/8		.375	9.5250	3/4		.75	19.0500
Millimetres			25/64		.390625	9.9219	49/64		.765625	19.4469
1/64			13/32		.40625	10.3187	25/32		.78125	19.8437
1/32			27/64		.421875	10.7156	51/64		.796875	20.2406
3/64			7/16		.4375	11.1125	13/16		.8125	20.6375
1/16			29/64		.453125	11.5094	53/64		.828125	21.0344
5/64			15/32		.46875	11.9062	27/32		.84375	21.4312
3/32			31/64		.484375	12.3031	55/64		.859375	21.8281
7/64			1/2		.5	12.7000	7/8		.875	22.2250
1/8			33/64		.515625	13.0969	57/64		.890625	22.6219
9/64			17/32		.53125	13.4937	29/32		.90625	23.0187
5/32			35/64		.546875	13.8906	59/64		.921875	23.4156
11/64			9/16		.5625	14.2875	15/16		.9375	23.8125
3/16			37/64		.578125	14.6844	61/64		.953125	24.2094
13/64			19/32		.59375	15.0812	31/32		.96875	24.6062
7/32			39/64		.609375	15.4781	63/64		.984375	25.0031
15/64			5/8		.625	15.8750	1		1	25.4
1/4										

## SEMICONDUCTORS

FETS CASE		BV <sub>GSS</sub> V @ I <sub>G</sub> (uA)		V <sub>G</sub> S(OFF) Min Max @ V <sub>DS</sub> I <sub>D</sub> (nA)			I <sub>DSS</sub> (mA) Min Max @ V <sub>DS</sub> V <sub>G</sub> S			Y <sub>f</sub> (umhos) Min Max @ V <sub>DS</sub>			P <sub>tot</sub> mW	Use/Comments	
BFW10	TO-72(25)-	30					8	20	15	0	6500		300	N/CH Junction Audio To H.F.	
BFW11	TO-72(25)	30					4	10	15	0	6500		300	N/CH Junction Audio To H.F.	
BFW61	TO-72(25)	25					2	20	15	0	6500		300	N/CH Junction Audio To H.F.	
MEM631	W-25	+/-6	+/-10	4	15	200uA	5	30	15	0	1600 typ	15	500	N/CH Dual Gate MOS VHF Amp	
MFE131	TO-72(25)	20		4	15		5	30	15	0	8000	20000	300	N/CH Dual Gate, VHF	
MPF102	TO-92(72)	25	10	.5	8	15 2	2	20	15	0	2000	7500	15	310	N/CH Junction - VHF
MPF103	TO-92(72)	25	1		6	15 1	1	5	15	0	1000	5000	15	310	N/CH Junction - Audio Sw
MPF104	TO-92(72)	25	1		7	15 1	2	9	15	0	1500	5500	15	310	N/CH Junction - Audio Sw.
MPF105	TO-92(72)	25	1		8	15 10	4	16	15	0	2000	6000	15	310	N/CH Junction - Audio Sw.
MPF106	TO-92(72)	25	1	.5	4	15 10	4	10	15	0	2500	7000	15	310	N/CH Junction - RF.
MPF121	206	7-20			4	15	5	30	15	0	10000	20000	15	500	N/CH Dual Gate MOS, VHF Amp
MFE131*	262	20			4	15	3	30	15	0	8000	20000	15	350	N/CH Dual Gate MOS, VHF Amp
2N4342	TO-106	25	10		5	10	12	30	10	0	6000	10	180	P/CH Junction - Audio Sw	
2N5457	TO-92(72)	25	1	.5	6	15 10	1	5	15	0	1000	5000	15	310	N/CH Junction - Audio Sw.
2N5458	TO-92(72)	25	1		1	7 15 10	2	6	15	0	1500	5500	15	310	N/CH Junction - Audio Sw.
2N5459	TO-92(72)	25	1		2	8 15 10	4	9	15	0	2000	6000	15	310	N/CH Junction - Audio Sw.
2N5484	TO-92(72)	25	1	.3	3	15 10	1	5	15	0	3000	6000	15	310	N/CH Junction - VHF
2N5485	TO-92(72)	25	1	.5	4	15 10	4	10	15	0	3500	7000	15	310	N/CH Junction VHF
POWER FETS Case		V <sub>DSS</sub> (min) V @ I <sub>D</sub>		I <sub>D</sub> (max) A		V <sub>DS(on)</sub> /I <sub>D</sub> V <sub>GS</sub> = 10V V/A			V <sub>G</sub> S (off) I <sub>D</sub> = 1mA min V max		Power Diss T <sub>C</sub> = 25°C W		Use/Comments		
VN46AF	TO-202 F	40	10uA	2.0		3.0/1.0			0.8	2.0		12.5	N-channel Enhancement Mode VMOS FET		
VN66AF	TO-202 F	60	10uA	2.0		3.0/1.0			0.8	2.0		12.5	N-channel Enhancement Mode VMOS FET		
VN86AF	TO-202 F	80	10uA	2.0		4.0/1.0			0.8	2.0		12.5	N-channel Enhancement Mode VMOS FET		
2SJ48	TO-3 F	-120	-10mA	-7		-12/-7 (V <sub>GD</sub> = 0)			-0.15	-1.45		100	P-channel Enhancement Mode MOS FET		
2SJ49	TO-3 F	-140	-10mA	-7		-12/-7			-0.15	-1.45		100	P-channel Enhancement Mode MOS FET		
2SJ50	TO-3 F	-160	-10mA	-7		-12/-7			-0.15	-1.45		100	P-channel Enhancement Mode MOS FET		
2SK133	TO-3 F	120	10mA	7		12/7			0.15	1.45		100	N-channel Enhancement Mode MOS FET		
2SK134	TO-3 F	140	10mA	7		12/7			0.15	1.45		100	N-channel Enhancement Mode MOS FET		
2SK135	TO-3 F	160	10mA	7		12/7			0.15	1.45		100	N-channel Enhancement Mode MOS FET		



## BIPOLAR TRANSISTORS

TYPE	CASE	POL MAT	V <sub>ce</sub>	V <sub>cb</sub>	I <sub>C</sub> mA	V <sub>ces</sub> @ I <sub>C</sub> mA	H <sub>fe</sub> @ I <sub>C</sub> mA	F <sub>t</sub> @ I <sub>C</sub> MHz	P <sub>tot</sub> mW	USE	COMPARABLE TYPES
MJ802	TO-3	NS	90	100	30A	0.8 7.5A	25-100 7.5A	2 1A	200W	High Power O/P	
MJ2501	TO-3	PS	80	80	10A	2 5A	1000 5A		150W	Darl. O/P	
MJ2955	TO-3	PS	60	70	15A	1.1 4A	20-70 4A	4 500	115W	High Power O/P	2N4908, 2N4909, 2N5871
MJ3001	TO-3	NS	80	80	10A	2 5A	1000 5A		150W	Darl. O/P	
MJ4502	TO-3	PS	90	100	30A	0.8 7.5A	25-100 7.5A	2 1A	200W	High Power O/P	
MJ15003	TO-3	NS	140	140	20A		25-150	2	250W	H <sub>i</sub> power O/P	
MJ15004	TO-3	PS	140	140	20A		25-150	2	250W	H <sub>i</sub> Power O/P	
MJE2955	TO-220	PS	60	70	10A	1.1 4A	20-100 4A	2 500	75W	G.P. Power	TIP2955
MJE3055	TO-220	NS	60	70	10A	1.1 4A	20-100 4A	2 500	75W	G.P. Power	TIP3055
MU9610	152	NS	30	40	2A	0.4 1.5A	80-400 350	70 250	1W	O/P	TT801
MU9611	152-01	NS	30	40	2A	0.4 1.5A	80-400 350	70 250	1W	O/P	TT801
MU9660	152	PS	30	40	2A	0.4 1.5A	80-400 350	70 250	1W	O/P	TT800
MU9661	152-01	PS	30	40	2A	0.4 1.5A	80-400 350	70 250	1W	O/P	TT800
NSD106	TO-202(35)	NS	100	140		2.9 100	50-150 100	80 50		Driver - O/P	
NSD206	TO-202(35)	PS	100	100		2-1 100	50-150 100	150 50		Driver - O/P	
OC26	TO-3	PG	30	50	3.5A	.7 3A	30-100 1A	.3 500	32W	G.P. O/P	AD149
OC28	TO-3	PG	60	100	10A	.4 10A	20-65 1A	.2 1A	30W	H. C. Switch	ASZ15
OC44N	TO-1	PG	5	15	10		45-225 1	7.5 1	85	R. F. Amp.	AF125, AF135, AF172
OC45	GT-3	PG	5	15	10		25-125 1	3 3	85	R. F. Amp.	AF132, AF185, AF196
OC70	GT-3	PG	10	30	50		30 5	.5	125	G. P. Amp.	AC121, AC126, 2N1190
OC71	GT-3	PG	10	30	50		30-75 3	.6	125	G. P. Amp.	AC126, 2N2429
OC72	GT-6	PG	16	32	250		45-120 10	.35	165	Audio O/P	AC122, AC125, AC162
OC74N	TO-1	PG	10	20	300	.6 300	60-150 50	.1	550	Audio O/P	AC125, AC180, AC192
OC75	GT-3	PG	10	30	50		60-130 3	.1	125	G.P. Amp.	AC173, AC192
TIP318	TOP-66	NS	80	80	3A	1.2 3A	20 500	3 500	40W	Power Amp - Sw.	
TIP328	TOP-66	PS	80	80	3A	1.2 3A	20 500	3 500	40W	Power Amp - Sw.	
TIP2955	TOP-3	PS	70	100	15A	1.1 4A	20 4A	.8	90W	Power Amp - Sw.	MJE2955
TIP3055	TOP-3	NS	70	100	15A	1.1 4A	20 4A	.8	90W	Power Amp - Sw.	MJE3055
TT800	TO-39 (Mod)	PS	60	60	1A		40-120 100	100	800	Audio Driver - Sw.	TT797, NSD206 2N4030
TT801	TO-39 (Mod)	PS	60	80	1A		40-120 150	60	800	Audio Driver - Sw.	TT798, NSD106 2N3019
2N301	TO-3	PG	32	40	3A		50 1A	.2 1A	11W	Audio O/P	AT1138, OC26
2N706A	TO-18	NS	15	25	200		20 10	200	300	High Speed Sw.	
2N2926	TO-92(74)	NS	25	25	100		150 2	100	200	G. P.	BC108 etc
2N3053	TO-39	NS	40	60	700	1.4 150	50-250 150	100 50	2.86W	G. P. Switch	BD137
2N3054	TO-66	NS	55	90	4A	.1 200	25 500	.8 200	25W	Audio O/P	TIP318
2N3055	TO-3	NS	60	90	15A	1.1 4A	20 4A	.8 1A	115W	O/P - Sw.	BDY20
2N3563	TO-106	NS	12	30	50		20-200 8	600 8	200	R.F. - I.F. Amp. & Asc.	BF173
2N3564	TO-106	NS	15	30	100	.3 20	20-500 15	400 15	200	R.F. - I.F. Amp. & Asc.	BF167
2N3565	TO-106	NS	25	30	50	.35 1	150-600 1	40 1	200	Low Level Amp.	BC108, BC208
2N3566	TO-106	NS	30	40	200	1 100	150-600 10	40 30	300	G. P. Amp. & Sw.	BC183
2N3567	TO-106	NS	40	80	500	25 150	40-120 1	60 50	300	G. P. Amp. & Sw.	BC337
2N2568	TO-106	NS	60	80	500	25 150	40-120 1	60 50	300	G. P. Amp. & Sw.	
2N3569	TO-106	NS	40	80	500	25 150	100-300 1	60 50	300	G. P. Amp. & Sw.	
2N3638	TO-106	PS	25	25	500	25 50	30 50	100 50	300	G. P. Amp. & Sw.	BC327
2N3638A	TO-106	PS	25	25	500	25 50	100 50	150 50	300	G. P. Amp. & Sw.	BC558
2N3640	TO-106	PS	12	12	80	.2 10	30-120 10	300 10	200	Saturated Switch	
2N3641	TO-106	NS	30	60	500	.22 150	40-120 150	250 50	350	G. P. Amp. & Sw.	BC337
2N3642	TO-106	NS	45	60	500	.22 150	40-120 150	250 50	350	G. P. Amp. & Sw.	BC337
2N3643	TO-106	NS	30	60	500	.22 150	100-300 150	250 50	350	G. P. Amp. & Sw.	BC337
2N3644	TO-106	PS	45	45	500	1 300	115-300 50	200 20	300	G. P. Amp. & Sw.	BC327
2N3645	TO-106	PS	60	60	500	1 300	115-300 500	200 20	300	G. P. Amp. & Sw.	
2N3702	TO-92(74)	PS	25	40	200	.25 50	60-300 50	100 50	360	G. P. Amp. & Sw.	BC213
2N3904	TO-92	NS	40	60	200		100-300 1mA		310	Low Level Amp.	BC167A, BF194
2N4250	TO-106	PS	40	40	100	.25 10	250-400 .1	50	200	Low Level Amp.	
2N4258	TO-106	PS	12	12	50	.5 50	30-120 10	700 10	200	Saturated Sw.	BC559
2N4292	TO-92	NS	15	30	50	.6 10	20 3	600 4	200	Saturated Sw.	
2N4403	TO-92	PS	40	40	600		100-300 10		310	G.P.	BC307A, 2N2904
2N5589	MT-71C	NS	18	36	500		5 100	175→ 3W	15W	H.F. Mobile R.F.	
2N5590	MT-72C	NS	18	36	2A		5 250	175→ 10W	30W	H.F. Mobile R.F.	
2N5591	MT-72C	NS	18	36	4A		5 500	175→ 25W	70W	H.F. Mobile R.F.	
2N5871	TO-3	PS	60	60	7A	1 4A	20-100 2.5A	4 250	100W	Power Transistor	2N5872, 2N4908, MJ2955
2N6084	MT-72C	NS	18	36		6A	5→ 1A	175→ 40W	80W	VHF Output	B40-12
2SB367	PT-1	PG	25	25		1A	45-70 500	0.5	4W	Audio Output	AD162
2SC1096	TO-202-R	NS	30	40		2A	45-250 1A	60	10W	G.P. Output	2SC1098, TIP31
2SC1306	TOP-66	NS	65	65		3A	40-200 500	300	12W	H.F. Output	2SC2166
2SC1307	TOP-66	NS	70	70		8A	20-150 2A	150	25W	H.F. Output	2SC1969
2SC1969	TOP-66	NS	30	60		6A	10-180 10	150	20W	H.F. Output	2SC1307
2SC2166	TOP-66	NS	75	75		4A	35-180 100			H.F. Output	2SC1306
40250	TO-66	NS	50	50	4A	1.5 1.5A	25 100	1	29W	Power Transistor	2N3054
40408	TO-5	NS	80		700	1.4 150	40-200 200	100	1W	Power Transistor	BC639
40409	TO-39(H)	NS	80		700	1.4 150	50-250 150	100	3W	Power Transistor	BD139
40410	TO-39(H)	PS	80		700	1.4 150	50-250 150	100	3W	Power Transistor	BD140

NOTE: Some small signal transistors may be supplied in a TO-92 case with a "PN" prefix, the electrical specifications are the same, only the case is changed. See case outline TO-92(72) for pin detail.

## DIODES

	CASE	V <sub>R</sub>	I <sub>F</sub> (mA)	C <sub>d</sub> (pF)	V <sub>F</sub>	@ I <sub>F</sub> (mA)	I <sub>R</sub> (uA)	@ V <sub>R</sub>	T <sub>rr</sub> (nS)	Use/Comparable Types
Germanium										
AA 119	DO-7	30	100	1.2	2.2	10	150	30	70	AM/FM Detection Point Contact
OA47	DO-7	25	110	3.5	0.65	.1				Gold Bonded G.P. Switching
OA90	DO-7	20	45		1.5	10	450	20		G. P. Point Contact OA70 OA80
OA91	DO-7	90	50		1.9	10	180	75		G. P. Point Contact OA71, 79, 81
DSOA91	DO-7	50	30	1	1	5	200	10		G. P. OA91, 1N60
OA95	DO-7	90	50		1.5	10	110	0.75		G. P. Point Contact
Silicon										
BA100	DO-7	60	90	25	0.96	10	10	60		G. P. - Alloyed
BA 102	DO-7	20		20-45	C <sub>d</sub> ratio 1.4 @ 4/10 V/VV					Variable Capacitance
BA 114	DO-7		20		.7	1				Bias Stabilizer
BB119	DO-35	15		20-25 @ 4V	C <sub>d</sub> Ratio=1.3					Varicap - Replaces BA102
OA200	DO-7	50	160	25	0.96	10	0.1	50		Small Signal - Alloyed
OA202	DO-7	150	160	25	0.96	10	0.1	150		Small Signal - Alloyed
IN914A	DO-35	75	75	4	1	10	5	75	4	Small Signal Sw. IN4148
IN4148	DO-5	75	75	4	1	10	0.025	20	4	Small Signal Sw. IN914A
IN4448	DO-35	75	300	4	1	100	0.025	6	4	G. P. Silicon Sw. IN4148
5082-2800	DO-7	70	15	2	0.41	1	0.2	50	0.1	Schottky (Hot Carrier) UHF Detector, Mixer, Switch



# DATA SECTION

## RECTIFIERS

TYPE	MAT	V <sub>R</sub>	I <sub>F</sub> (A)	V <sub>F</sub>	@ I <sub>F</sub> (A)	I <sub>R</sub> (uA)	@ V <sub>R</sub>	USE
A14P	S	1000	2.5	1.25	2.5	0.5	1000	Transient Protected (Controlled Avalanche)
A15A	S	100	5	1.1	5	5	100	G. P. Rectifier
A15B	S	200	5	1.1	5	5	200	Transient Protected (Controlled Avalanche)
BYX21L/200/R	S	75	25	1.2	25	1.1mA	75	Automobile H. Duty Press fit.
DS5404	S	200	3	1.1	3	5	200	G. P. Rectifier.
EM4005	S	50	1	1.1	1	5	50	G. P. Rectifier.
EM401	S	100	1	1.1	1	5	100	G. P. Rectifier.
EM404	S	400	1	1.1	1	5	400	G. P. Rectifier.
EM410	S	1000	1	1.1	1	5	1000	G. P. Rectifier.
MR110	S	100	10					G. P. Stud Mount
MR410	S	400	10					G. P. Stud Mount
MR510	S	1000	3	1.1	3	5	1000	G. P. Rectifier.
IN3492/R	S	100	25	1.7	18	1 mA	100	Heavy Duty Automobile Press fit.
IN3493/R	S	200	25	1.7	18	1 mA	200	Heavy Duty Automobile Press fit.
IN4001	S	50	1	1.1	1	5	50	G. P. Rectifier.
IN4002	S	100	1	1.1	1	5	100	G. P. Rectifier.
IN4004	S	400	1	1.1	1	5	400	G. P. Rectifier.
IN4007	S	1000	1	1.1	1	5	1000	G. P. Rectifier.
IN5059(A14B)	S	200	2.5	1.25	2.5	0.2	200	Transient Protected (Controlled Avalanche).
IN5060(A14D)	S	400	2.5	1.25	2.5	0.2	400	Transient Protected (Controlled Avalanche).
IN5061(A14M)	S	600	2.5	1.25	2.5	0.2	600	Transient Protected (Controlled Avalanche).
IN5062(A14N)	S	800	2.5	1.25	2.5	0.5	800	Transient Protected (Controlled Avalanche).
IN5404	S	400	3	1.1	3	5	400	G. P. Rectifier
IN5408	S	1000	3	1.1	3	5	1000	G. P. Rectifier
IN5624	S	200	5	1.1	5	5	200	Transient Protected (Controlled Avalanche)

## RECTIFIER BRIDGES

TYPE	MAT	V <sub>R</sub>	I <sub>F</sub> (A)	V <sub>F</sub>	@ I <sub>F</sub> (A)	I <sub>R</sub> (uA)	@ V <sub>R</sub>	USE
PA60	S	600	8					G. P. Bridge
PB40	S	400	25	1.2 (per leg)	12.5	10	400	Heavy Duty Bridge
MB1	S	100	1.8			5	100	Mini Bridge
MB4	S	400	1.8			5	400	Mini Bridge
WO2	S	200	1.5	1.1 (per leg)	1	10	200	Mini Bridge
WO4	S	400	1.5	1.1 (per leg)	1	10	400	Mini Bridge

## SCR'S

Type	Case	V <sub>DRM</sub>	I <sub>T</sub> (r.m.s.) (A)	I <sub>GT</sub> (mA)	V <sub>GT</sub>	P <sub>G</sub> (AV) (W)	I <sub>H</sub> (mA)	dv/dt (V/μs)	(25°C)
C103B	TO-92	200	.8	.2 max	.8 max	.01	5 max	20 typ.	(R <sub>GK</sub> - 1k)
C106Y	TO-202	30	4	.2 max	.8 max	.1	5 max	8 typ.	"
C106D	TO-202	400	4	.2 max	.8 max	.1	3 max	8 typ.	"
C122D	TO-220	400	8	25 max	1.5 max	.5	3 max	50 typ.	(Gate o/c)
C122E	TO-220	500	8	25 max	1.5 max	.5	30 max	50 typ.	"
C164D	TO-48	400	16	40 - 80	2 typ.				"
C168D	TO-48	800	16	40 - 80	2 typ.				"
S4008	TO-220	400	8	25 max.	1.5 max	.5	30 max	50 typ.	(Gate o/c)
S6008L	TO-220	600	8	25 max	1.5 max	.5	30 max	50 typ.	"
TIC126E	TO-220	500	8	20 max	1.5 max	.5	40 max	100 typ.	"

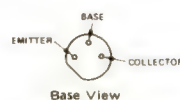
## TRIAC'S

Type	Case	V <sub>DRM</sub>	I <sub>T</sub> (r.m.s.) (A)	I <sub>GT</sub> (mA)	V <sub>GT</sub>	P <sub>G</sub> (AV) (W)	I <sub>H</sub> (mA)	dv/dt (V/US)	(25°C)
Q-4006L4	TO-220	400	6	75 max. all modes	2.5 max. all modes	.9	60 max.	100 typ.	(Gate o/c)
SC141D	TO-220	400	6	50 "	2.5 "	.5	50 max.	100 typ.	"
SC146D	TO-220	400	10	50 "	2.5 "	.5	50 max.	150 typ.	"
SC151D	TO-220	400	15	50 max. all modes	2.5 max. all modes	.5	50 max.	250 typ.	(Gate o/c)
TIC246D	TO-220	400	16*		2.5 "		50 max		(*case temp. below 70°)
2N6343	TO-220	400	8	75 "	2.5 "	.5	75 max.	5 typ.	(commutating)

## PHOTO SENSITIVE DEVICES

### FPT100 Silicon Photo Transistor

Silicon photo transistor with lens. V<sub>CE</sub> 50 typ. @ I<sub>CE</sub> (I<sub>t</sub>) 1.4mA typ @ H = 5mW/cm<sup>2</sup> with V<sub>CE</sub> = 5



### MEL12 Silicon Darlington Photo Transistor



Silicon Darlington transistor with lens V<sub>CE</sub> 40 typ. @ I<sub>C</sub> (I<sub>t</sub>) 3mA typ @ H = 3mW/cm<sup>2</sup> V<sub>CE</sub> with V<sub>CE</sub> = 5. Dark current maximum 100uA with V<sub>CE</sub> = 5

## LED'S Light Emitting Diodes

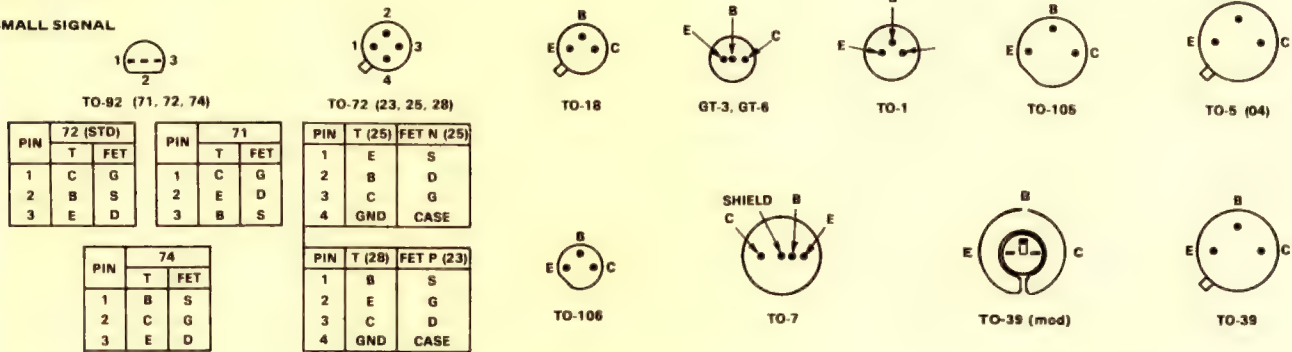
Type	Z-4010 Red Diffused	Z-4020 Green Diffused	Z-4030 Red Diffused	Z-4038 Red Clear	Z-4032 Green Diffused	Z-4034 Yellow Diffused	Z-4036 Orange Diffused	Z-4040 Red Rectangular Diffused	Z-4042 Green Rectangular Diffused	Z-4044 Yellow Rectangular Diffused
Nominal Size (mm)	3 diam	3 diam	5 diam	5 diam	5 diam	5 diam	5 diam	2 x 5 rect	2 x 5 rect	2 x 5 rect
Forward Voltage (V <sub>F</sub> @ I <sub>F</sub> = 20mA)	1.6V	2.2V	1.6V	1.6V	2.2V	2.3V	1.7V	1.6V	2.2V	2.3V
Maximum Forward Continuous Forward Current (I <sub>F</sub> )	40mA	40mA	40mA	40mA	40mA	40mA	40mA	40mA	40mA	40mA
Reverse Voltage (I <sub>R</sub> = 0.01uA)	3V	3V	3V	3V	3V	3V	3V	3V	3V	3V
Luminous Intensity (I <sub>F</sub> = 20mA)	0.8mcd (min)	0.8mcd (min)	1.0mcd (min)	1.0mcd (min)	1.0mcd (min)	1.0mcd (min)	1.0mcd (min)	1.0mcd (min)	1.0mcd (min)	1.0mcd (min)
Peak Wavelength (λ <sub>m</sub> nm)	650 typ	560typ	650 typ	650 typ	560 typ	585 typ	635 typ	650 typ	560 typ	585 typ



<b>ST - 4</b> <b>ASSYMETRIC</b> <b>TRIGGER</b> T <sub>1</sub> <b>DIODE</b> T <sub>2</sub>	<b>BR - 100</b> <b>DIAC</b>	<b>DS2646</b> <b>UNIUNCTION</b> <b>TRANSISTOR (UJT)</b> <b>NEGATIVE BASE</b>	<b>2N6027/D13T1</b> <b>PROGRAMMABLE</b> <b>UNIUNCTION</b> <b>TRANSISTOR</b>
V <sub>S1</sub> - 14 - 18V V <sub>S2</sub> - 7 - 9V I <sub>S1</sub> - 80uA I <sub>S2</sub> - 160uA V <sub>F1</sub> - 7 - 10V V <sub>F2</sub> - 1.6 (max) I <sub>OFF1</sub> - 100nA I <sub>OFF2</sub> - 100nA P <sub>AV</sub> - 350mW I <sub>F(max)</sub> - 200mA	V <sub>S</sub> - 28 - 36V V <sub>SYM/VRRM</sub> - 3V I <sub>S(max)</sub> - 100uA Δ V <sub>T</sub> - 6V @ 10mA	P <sub>TOT</sub> - 300mW V <sub>B2-E</sub> - 30V V <sub>B2-B1</sub> - 35V R <sub>(B-B1)O</sub> - 9k ohms (max) V <sub>B1(PK)</sub> - 3V I <sub>E(PK)</sub> - 5uA η - 0.56 - 0.75 I <sub>VAL</sub> - 4mA min.	V <sub>A-K</sub> - 40V (max) I <sub>T</sub> - 2A (max) I <sub>VAL</sub> - 50uA I <sub>S(max)</sub> - 2uA @ 1.5V

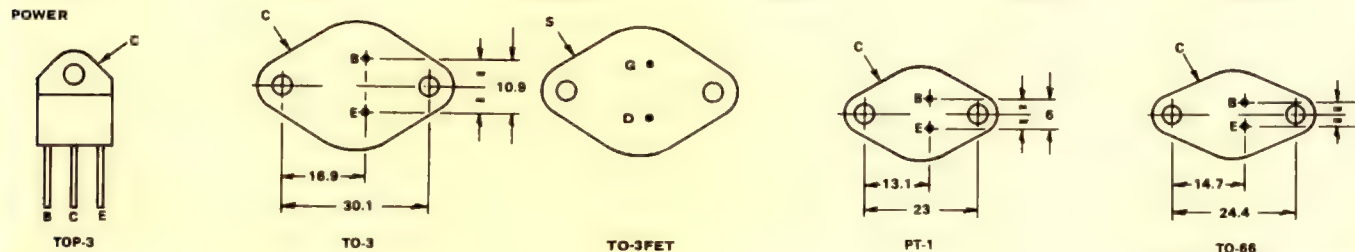
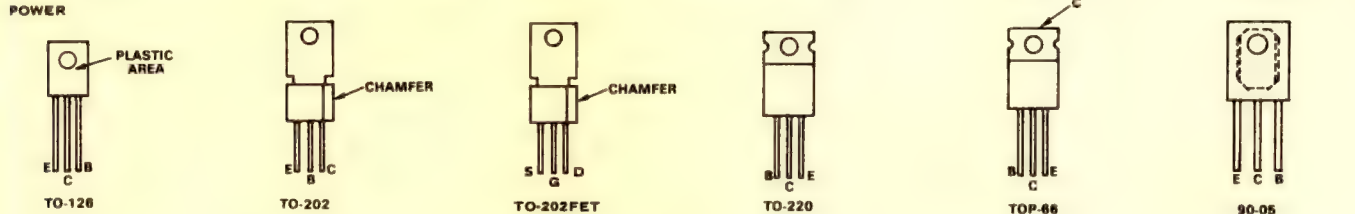
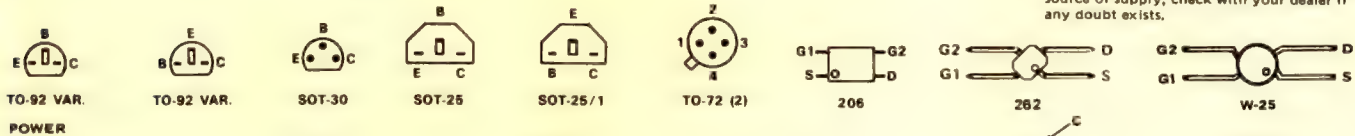
## SEMICONDUCTOR OUTLINES

### SMALL SIGNAL

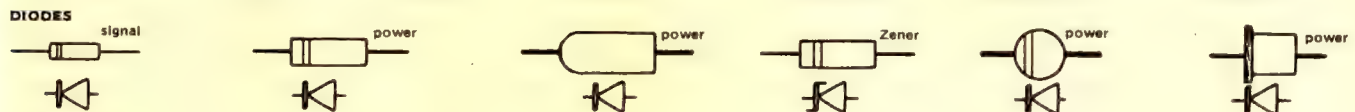
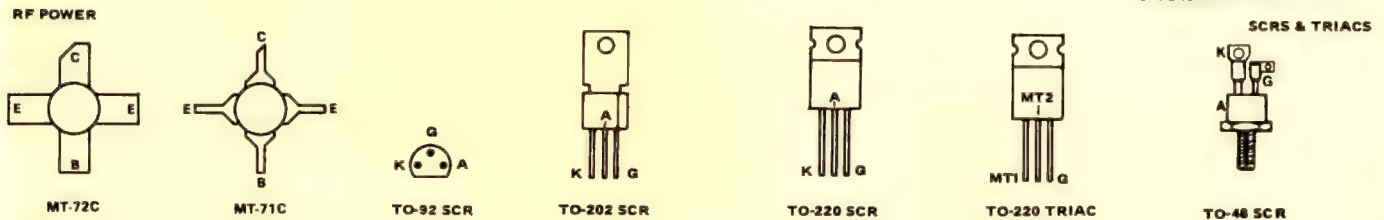


### FETS

Note: Pin connections may vary with different source of supply, check with your dealer if any doubt exists.



### DIMENSIONS IN MILLIMETRES



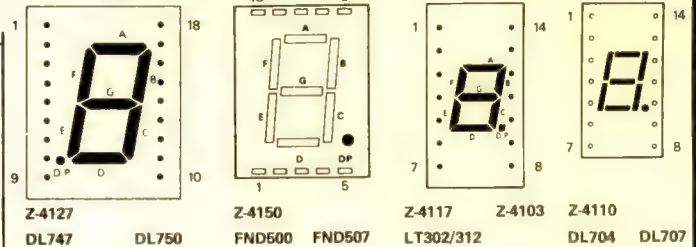
<b>BIPOLARS</b> E : EMITTER B : BASE C : COLLECTOR NG : NPN GERMANIUM PG : PNP GERMANIUM NS : NPN SILICON PS : PNP SILICON	<b>FETS</b> S : SOURCE G : GATE D : DRAIN N/CH : N CHANNEL P/CH : P CHANNEL	<b>G.P. : GENERAL PURPOSE</b> <b>S.S. : SMALL SIGNAL</b> <b>SW : SWITCH</b> <b>O/P : OUTPUT</b>	<b>R.F. : RADIO FREQUENCY</b> <b>H.F. : HIGH FREQUENCY</b> <b>V.H.F. : VERY HIGH FREQUENCY</b>
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## 7 SEGMENT LED DISPLAYS

Characteristic	DL704 DL707	LT302/312 Z-4117	LT303/313 Z-4103	DL747 DL750	FND500 FND507	Z-4151
Digit Size	7.6mm	7.6mm	7.6mm	15.2mm	12.7mm	12.7mm
Colour	red	red	red	red	red	orange
Av. Fwd. Current	25mA	25mA	25mA	25mA	25mA	20mA
Segment						
Fwd. Voltage	1.6	1.7	1.7	2.4	1.7	2.1
Min. Rev. Break- down Voltage	3V	3V	3V	6V	3V	5V
Max. Rev. Current	100uA	100uA	100uA	100uA	100uA	100uA
Light Intensity	320ucd	800ucd	800ucd	600ucd	600ucd	3300ucd
Segment						
Max Power Dissp	500mW	340mW	340mW	960mW	400mW	400mW

PIN CONNECTIONS (top view)



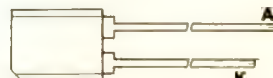
### PINOUT

Pin out Z-4127 DL-747	Pin out Z-4150 FND500	Pin out Z-4110 DL-704	Pin out DL-707	Pin out Z-4117 LT302/312	Pin out Z-4103 LT303/313
1 NC	1 Seg. E	1. Seg. F	1. Seg. A	1. Seg. A	1. NC
2 Seg. A	2 Seg. D	2. Seg. G	2. Seg. F	2. Seg. F	2. Cathode
3 Seg. F	3 Common	3. NC	3. Anode	3. Anode	3 Seg. F
4 Common	4 Seg. C	4. Cathode	4. NC	4. NC	4. Seg. G
5 Seg. E	5 Dec. Point	5. NC	5. NC	5. NC	5. Seg. E
6 Common	6 Seg. B	6. Seg. E	6. Dec. Point	6. L. Dec. Point	6 Seg. D
7 Dec. Point	7 Seg. A	7. Seg. D	7. Seg. E	7 Seg. E	7 NC
8 NC	8 Common	8. Seg. C	8. Seg. D	8 Seg. D	8. NC
9 NC	9 Seg. F	9. Dec. Point	9. Anode	9 R. Dec. Point	9 Cathode

## INFRARED OPTICS

### BPW 34 & BPW 50 SILICON PHOTO P-I-N DIODE QUICK REFERENCE DATA

Continuous reverse voltage	$V_R$ max.	32 V	32 V
Total power dissipation up to $T_{amb} = 47.5^\circ C$	$P_{tot}$ max.	150 mW	150 mW
Junction temperature	$T_j$ max.	100 $^\circ C$	100 $^\circ C$
Dark reverse current	$I_R(D) <$	30 nA	2 nA
$V_R = 10 V; E_e = 0$			
Light reverse current	$I_R(L) >$	30 $\mu A$	10 $\mu A$
$V_R = 5 V; E_e = 1 mW/cm^2; \lambda = 930 nm$			
Wavelength at peak response	$\lambda_{pk}$ typ.	930 nm	850 nm
$V_R = 5 V$	A typ.	5 mm <sup>2</sup>	7.6 mm <sup>2</sup>
Sensitive area			



### CQY89, LD271 GaAs LIGHT EMITTING DIODE

Epitaxial gallium arsenide light emitting diode intended for remote-control applications. It emits radiation in the near infrared when forward biased. Infrared translucent epoxy encapsulation (dark blue).

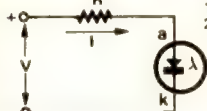
#### QUICK REFERENCE DATA

Continuous reverse voltage	$V_R$ max.	5 V
Forward current (d.c.)	$I_F$ max.	130 mA
Total power dissipation up to $T_{amb} = 25^\circ C$	$P_{tot}$ max.	215 mW
Junction temperature	$T_j$ max.	100 $^\circ C$
Radiant intensity (on-axis)	$I_e$	$> 9 mW/sr$
at $I_F = 100 mA$	CQY89A-1	$I_e$ 9 to 20 mW/sr
	CQY89A-2	$I_e$ $> 15 mW/sr$
Wavelength at peak emission	$\lambda_{pk}$ typ.	930 nm

## USING LEDs

### DC Operation

When using a light emitting diode (LED) as an indicator, use the following formula to determine series resistance for various voltages  $R = (E - 1.7) \times 1000 / I$ , where  $R$  is resistance in ohms,  $E$  is supply voltage (DC) and  $I$  is LED current in milliamps.  
E.G. to operate LED at 20mA on: 6V, use 220 ohms  
9V, " 390 "  
12V, " 560 "  
24V, " 1.2 k "



### Mains Operation

To operate a LED directly from the 240V mains, a better scheme is to use the second circuit shown. In this, a capacitor is used as a voltage dropping element. A 1N4148 diode or similar across the LED provides the rectification required. As the voltage drop across the LED is negligible compared with the supply, capacitor current is almost exactly equal to mains voltage divided by capacitive reactance  $X_c$ .

At 50Hz, 0.47uF will result in a LED current of about 16mA. Resistor  $R_s$  is to limit turn-on transients. A value of 270 ohms should be adequate.



## 9 DIGIT RED LED DISPLAY

### Z-4155 MULTIPLEXED

absolute maximum ratings over operating free-air temperature range

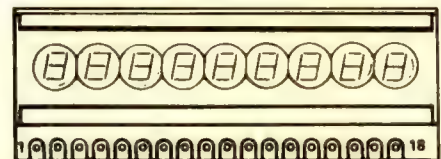
Reverse Voltage, Each Segment or Decimal Point	3 V
Peak Forward Current, Each Segment or Decimal Point	60 mA
Average Forward Current, Each Segment or Decimal Point (10 ms)	5 mA
Operating Free-Air Temperature Range	$-25^\circ C$ to $85^\circ C$
Storage Temperature Range	$-25^\circ C$ to $85^\circ C$
Terminal Temperature for 5 Seconds	$230^\circ C$

operating characteristics of each segment or decimal at  $25^\circ C$  free-air temperature

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
$I_{LPK}$ Peak Luminous Intensity	Segment Decimal	200	600		acd
$\lambda_p$ Wavelength at Peak Emission	$I_{FM} = 10 mA$ $I_{DC} = 5 mA$	640	660	680	nm
$\Delta\lambda$ Spectral Bandwidth	PRR = 100 Hz		20		nm
$V_F$ Static Forward Voltage		1.7	2.1		V

#### TAB ASSIGNMENTS

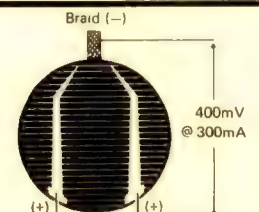
TAB	FUNCTION	TAB	FUNCTION
1	NO INTERNAL CONNECTION	10	DIGIT 5 CATHODE
2	DIGIT 1 CATHODE	11	SEGMENT D ANODES
3	SEGMENT C ANODES	12	DIGIT 6 CATHODE
4	DIGIT 2 CATHODE	13	SEGMENT G ANODES
5	DECIMAL POINT ANODES	14	DIGIT 7 CATHODE
6	DIGIT 3 CATHODE	15	SEGMENT B ANODES
7	SEGMENT A ANODES	16	DIGIT 8 CATHODE
8	DIGIT 4 CATHODE	17	SEGMENT F ANODES
9	SEGMENT E ANODES	18	DIGIT 9 CATHODE



## SILICON SOLAR CELLS

### Z-4840

Short Circuit Voltage (Direct Sunlight) 400mV @ 300mA  
Short Circuit Voltage (Diffused Sunlight) 200mV @ 270mA  
Open Circuit Voltage (No Load) 500mV



These cells are supplied as a full circle with a diameter of 75mm. The cells can be wired in series or parallel to give the required voltage and current. If for instance 6 cells are wired in series, the output would be 2.4V @ 300mA. If 6 cells are connected in parallel, the output would be 400mV @ 1.8A. To obtain approximately 12Vdc @ 1A, around 100 units would be required.



# ICM7216B FREQUENCY x PERIOD COUNTER

## ICM7216B Pin Configurations

CONTROL INPUT	1	28	INPUT A	ICM7216B 10MHz Universal Frequency & Period Counter	Z-5747
INPUT B	2	27	HOLD INPUT	Supply Voltage Range	4.75min, 6max
FUNCTION INPUT	3	26	OSC OUTPUT	Operating Supply Current (Display off, inputs to V-)	2mA typ
DIGIT 0 OUTPUT	4	25	OSC INPUT		
DIGIT 2 OUTPUT	5	24	EXT OSC INPUT		
DIGIT 1 OUTPUT	6	23	DECIMAL POINT OUTPUT		
DIGIT 3 OUTPUT	7	22	SEG G OUTPUT		
V-	8	21	SEG E OUTPUT		
DIGIT 4 OUTPUT	9	20	SEG A OUTPUT		
DIGIT 5 OUTPUT	10	19	SEG D OUTPUT		
DIGIT 6 OUTPUT	11	18	V+	Maximum Input Frequency (Input A)	10MHz
DIGIT 7 OUTPUT	12	17	SEG B OUTPUT	(Input B)	2.5MHz
RESET INPUT	13	16	SEG C OUTPUT	Digit Driver Output Current	75mA typ
RANGE INPUT	14	15	SEG F OUTPUT	Segment Driver High Output Current	10mA min

Used in the K-3439 Dick Smith Digital Frequency/Period Meter

# ICL7106 3.5 DIGIT CMOS A/D CONVERTER

## ICL7106 PIN CONFIGURATIONS

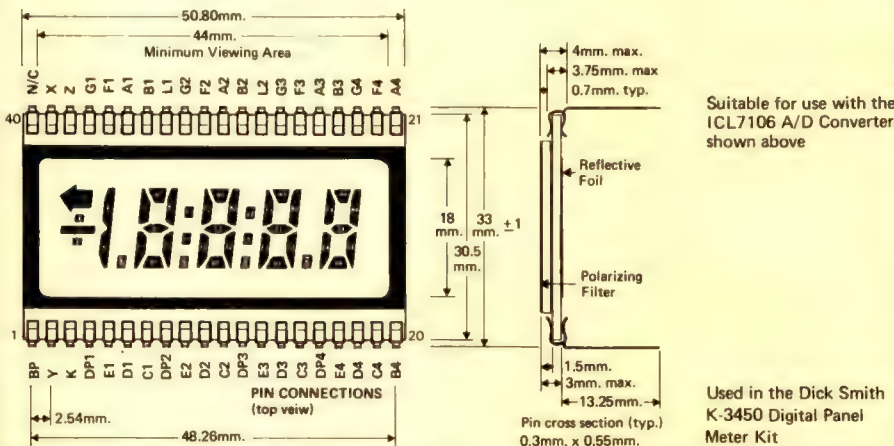
(-) SUPPLY	1	40	OSC1	ICL7106 3½ Digit Single-Chip CMOS A/D Converter	Z-6300
D(UNITS)	2	39	OSC2	For Liquid Crystal Display	
C(UNITS)	3	38	OSC3	Supply Voltage	9 nominal, 15 max
B(UNITS)	4	37	TEST	Supply Current	0.8mA typ
A(UNITS)	5	36	+REF		
F(UNITS)	6	35	-REF		
G(UNITS)	7	34	+REF CAP		
E(UNITS)	8	33	-REF CAP		
D(TENS)	9	32	COMMON	Ratiometric Reading (Vin = ref & Vref = 100mV)	999/1000
C(TENS)	10	31	INPUT HI	Full Scale Reading (set with external R/C components)	200mV & ±2.0V
B(TENS)	11	30	INPUT LO	Accuracy (Over entire ± 2000 counts)	± 1 count
A(TENS)	12	29	AUTO ZERO	Display Required	3½ digit LCD
F(TENS)	13	28	BUFFER	Input Impedance	10meg min
E(TENS)	14	27	INTEGRATOR	Reading Rate	3 per second
D(100s)	15	26	(-) SUPPLY		
B(100s)	16	25	G(TENS)		
F(100s)	17	24	C(100s)		
E(100s)	18	23	A(100s)		
AB(1000)	19	22	G(100s)		
POLARITY	20	21	BACKPLANE	Suitable for use with the Z-4175 LCD Display shown below.	
(MINUS)				Used in the Dick Smith K-3450 Digital Panel Meter	

# 4½ DIGIT LIQUID CRYSTAL DISPLAY

Z-4175

## Specifications

Operating Voltage	2min, 5max	Contrast Ratio	20:1
DC Drive Component Allowable	25mV max	Viewing Angle	+50° from normal
Operating Frequency Range	30 to 200Hz	Operating Temperature Range	-10 to +51°C
Visual Threshold	10% on @ 22°C, 1Vrms		
	90% on @ 22°C		



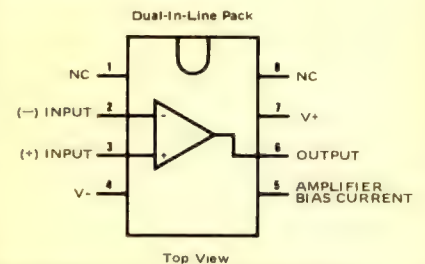
# CA3080 Operational Transconductance Amplifier

The CA3080 is a programmable transconductance block intended to fulfill a wide variety of variable gain applications. The CA3080 has differential inputs and high impedance push-pull outputs. The device has high input impedance and its transconductance (gm) is directly proportional to the amplifier bias current (I<sub>ABC</sub>).

High slew rate together with programmable gain make the CA3080 an ideal choice for variable gain applications such as sample and hold, multiplexing, filtering, and multiplying.

	Typ.	Max.
Supply Voltage Range	±2V to ±18V	
Differential Input Voltage	±5V	
Input Offset Voltage	6V	
Forward Transconductance (gm)	9600	
Peak Output Current		
R <sub>L</sub> = 0, I <sub>ABC</sub> = 5μA	5μA	
Open Loop Bandwidth	2MHz	
Slew Rate		
Unity Gain Compensated	50V/μs	
Amplifier Bias Current (I <sub>ABC</sub> )		2mA

## PIN CONFIGURATION



# OPTO ISOLATORS 4N28 OPTIC COUPLER

A Gallium Arsenide LED optically coupled to a silicon photo-transistor designed for application requiring electrical isolation and high current transfer ratios. They are a 8DIL plastic low cost pack. They are ideal for interfacing and coupling systems, phase and for feedback control, solid state switching and general purpose switching circuits.

## Specifications:

Diode: V <sub>r</sub> -3volts; I <sub>f</sub> -80mA cont.; I <sub>f</sub> -3A peak;	
V <sub>i</sub> @ 50mA: 1.5A max;	Pd - 150mW
NPN Photo Transistor: V <sub>ce</sub> - 30 volts; V <sub>cb</sub> - 70 volts; Pd - 150mW	
I <sub>ce</sub> - dark current: 50nA max. (V <sub>ce</sub> = 10volts)	
Total device rating: Pd - 250mW. Isolation voltage: 500 min.	

## Cat Z-4804



## DIL PACK Top View PIN CONNECTIONS



# MOC 3021 TRIAC DRIVER OUTPUT COUPLER

This triac driver output coupler is a gallium arsenide LED pack, optically coupled to a silicon bilateral switch designed for general applications requiring isolated triac triggering such as interface from logic to mains operated equipment. These devices offer low current, isolated ac switching; high output blocking voltage; small size and low cost.

Specifications:	LED trigger current:	5mA typ.
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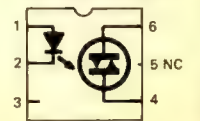
Peak blocking voltage: 400

Isolation voltage: 7500 min.

## Cat Z-4516



## DIL PACK Top View PIN CONNECTIONS



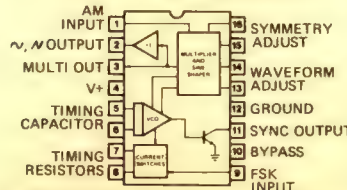
# XR-2206 MONOLITHIC FUNCTION GENERATOR

Used in the EA/Dick Smith Function Generator K-3250 Z-6820

The XR-2206 is a monolithic function generator integrated circuit capable of producing high quality sine, square, triangle, ramp and pulse waveforms of high stability and accuracy. The output waveforms can be both amplitude and frequency modulated by an external voltage. Frequency of operation can be selected externally over a range of 0.01 Hz to more than 1 MHz.

This circuit is ideally suited for communications, instrumentation, and function generator applications requiring sinusoidal tone, AM, FM, or FSK generation. It has a typical drift specification of 20 ppm/°C.

## FUNCTIONAL BLOCK DIAGRAM





## ZENER DATA

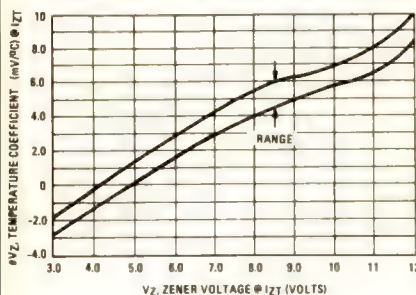
Type No. ▲ 400mW Series	Type No. ▼ 1Watt Series	Nominal Zener Voltage $V_Z @ I_{ZT}$ (V)	Test Current $I_{ZT}$ (mA)	
1N746		3.3	20	
1N747		3.6	20	
1N748		3.9	20	
1N750	1N4732	4.7	20	53
1N751	1N4733	5.1	20	49
1N752	1N4734	5.6	20	45
1N753	1N4735	6.2	20	41
1N754, 1N957	1N4736	6.8	18.5	37
1N755, 1N958	1N4737	7.5	16.5	34
1N756, 1N959	1N4738	8.2	15	31
1N757, 1N960	1N4739	9.1	14	28
1N758, 1N961	1N4740	10	14	25
1N962	1N4741	11	12.5	23
1N759, 1N963	1N4742	12	11.5	21
1N964	1N4743	13	10.5	19
1N965	1N4744	15	9.5	17
1N966	1N4745	16	8.5	15.5
1N4112	1N4746	18	7.8	14
1N968	1N4750	20	7	12.5
1N969	1N4748	22	7	11.5
1N970	1N4749	24	6.2	10.5
1N971	1N4750	27	5.3	9.5
1N972	1N4751	30	5.3	8.5
1N973	1N4752	33	5.2	7.5

▲DC Power Dissipation: 400milliwatts @ 50°C Ambient (Derate 3.2mW/°C above 50°C)

▼DC Power Dissipation: 1Watt @ 50°C Ambient (Derate 6.67mW/°C above 50°C)

This range will dissipate up to 3W @ 75°C with 10mm lead length as heatsink.

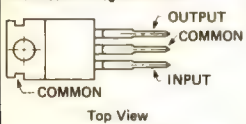
Temperature coefficient range for 1Watt units to 12 volts.



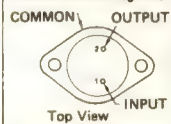
## THREE TERMINAL REGULATORS

Type	Polarity	Case	$V_{OUT}$ min typ max	$I_{OUT}$ (nom)	Dropout Voltage
7805	positive	TO-220	4.8 5 5.2	1A	2
7812	positive	TO-220	11.5 12 12.5	1A	2
7815	positive	TO-220	14.4 15 15.6	1A	2
7905	negative	TO-220	-4.8 -5 -5.2	1A	1.1
7912	negative	TO-220	-11.5 -12 -12.5	1A	1.1
7915	negative	TO-220	-14.4 -15 -15.6	1A	1.1
LM317K	positive	TO-3	adj. 1.2 to 37	1.5Amin	
LM317T	positive	TO-220	adj. 1.2 to 37	1.5Amin	
78H05	positive	TO-3	4.85 5 5.25	5A	2.5

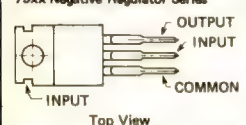
Connections TO-220 Package  
78xx Positive Regulator Series



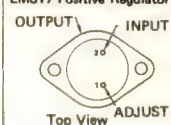
Connections TO-3 Package  
78H05 Positive Regulator



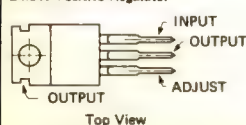
Connections TO-220 Package  
79xx Negative Regulator Series



Connection TO-3 Package  
LM317 Positive Regulator

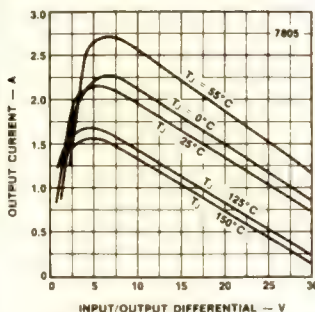


Connections TO-220 Package  
LM317 Positive Regulator

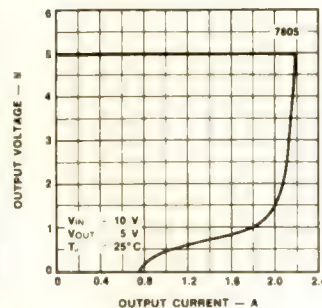


## TYPICAL CHARACTERISTICS OF THE 7805 3 TERMINAL REGULATOR

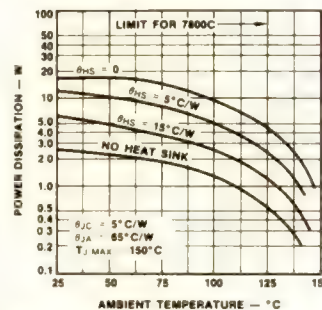
The other members of this 78xx/79xx family have similar characteristics to those shown. For other data, refer to manufacturers literature.



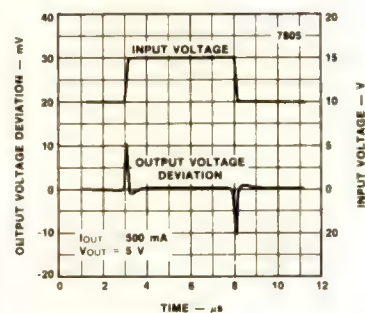
Peak Output Current as a Function of Input to Output Differential Voltage



Current Limiting Characteristics 7805



Worst Case Power Dissipation Versus Ambient Temperature (TO-220 Pack)

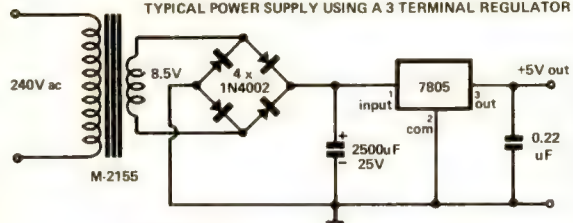


Line Transient Response 7805

## VOLTAGE REGULATORS

These voltage regulators almost make power supply building unnecessary since they require only a filtered DC voltage input, they are essentially indestructible (if used within manufacturer's specs.) because of internal current limiting and thermal shut-down should a short occur. They are ideally suited to local, on board regulation simplifying power supply distribution systems. Excellent for TTL and project supplies. With the advent of microprocessors and microcomputers, these regulators have been used extensively in power supplies for such systems. This type of use typifies their versatility and reliability. Another area of supply regulation use is with analogue operational amplifiers. These circuits usually call for both + and - complementary rail voltages. These three terminal devices ideally suit such requirements. Both positive and negative devices will give a current output in excess of 1A and foldback current limiting occurs if the output is shorted.

### TYPICAL POWER SUPPLY USING A 3 TERMINAL REGULATOR



Output: 5V @ 1A

The same basic circuit can be used with other regulators of different voltages, only the input ac voltage has to be changed to accommodate the requirement of that regulator. eg. If an output of 12V was the requirement, a 7812 IC could be used with an ac input voltage of 15V.

### INCREASE THE OUTPUT VOLTAGE OF A 3 TERMINAL VOLTAGE REGULATOR

Regulators like the 7805 and the 7905 can give higher output if two additional resistors are configured into the circuit as shown below.

$$R1 = V_R / 0.02$$

$$R2 = V_B / 0.25$$

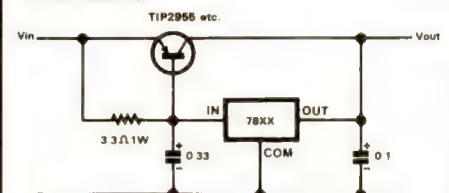
Where  $V_R$  is the normal regulated voltage from the IC and  $V_B$  is the amount by which the regulator has to be boosted above  $V_R$ .

Some examples are given below:

$V_{OUT}$	Regulator	R1	R2
6	5V	220	39
9	5V	220	150
13.8	12V	560	68
18	15V	880	120

To make a variable regulator, use a potentiometer as R2.

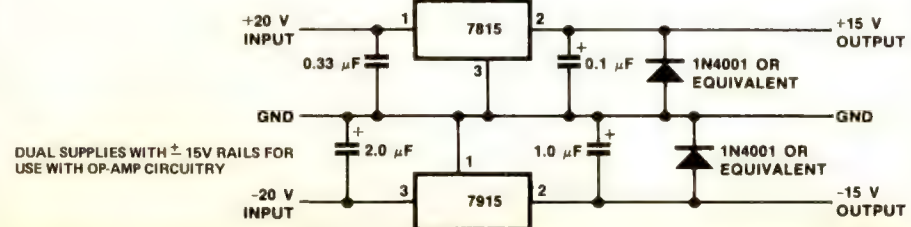
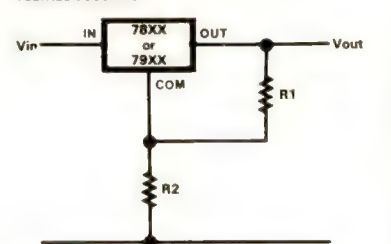
### CURRENT BOOSTING



### INCREASING THE OUTPUT CURRENT OF THE REGULATOR

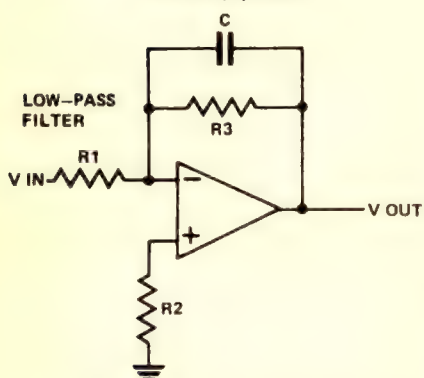
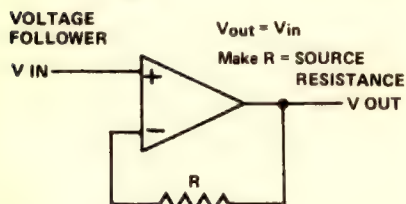
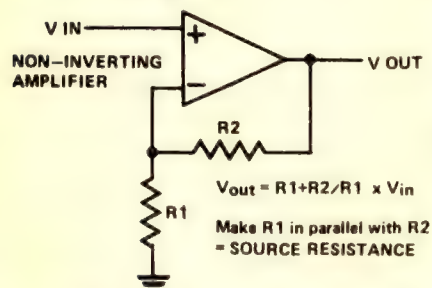
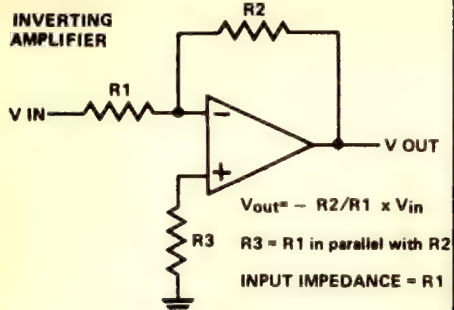
By adding a PNP power transistor to a positive regulator, the output current can be increased above the normal rating of the regulator itself. The circuit shown below can be expected to deliver in excess of 4A with the pass transistor mounted on a heatsink. The same conditions can also be implemented with a negative regulator, the difference being the polarities of components, the pass transistor in this case would be an NPN type such as a 2N3055.

### VOLTAGE BOOSTING

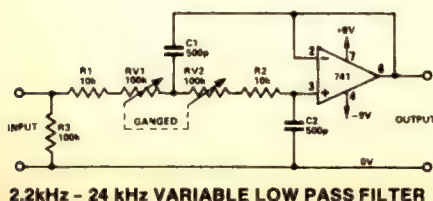
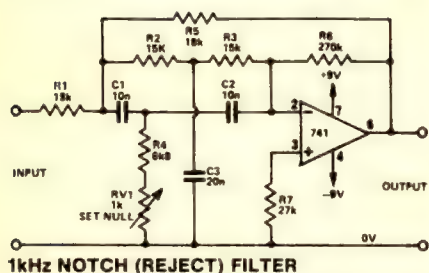




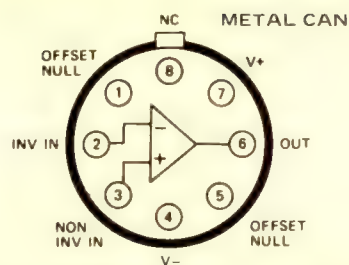
## AMPLIFIER CONFIGURATIONS



CORNER FREQUENCY =  $1/2\pi \cdot R3 \cdot C$   
 UNITY GAIN FREQUENCY =  $1/2\pi \cdot R1 \cdot C$   
 $R2 = R1$  in parallel with  $R3$



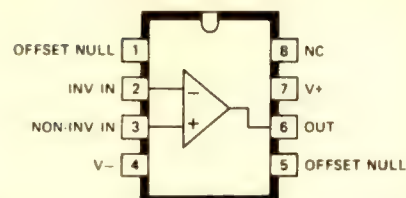
## OP AMPS



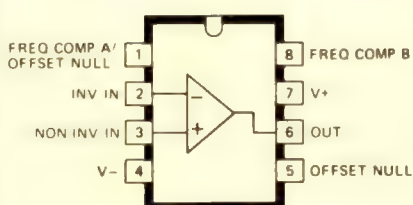
741

## PIN CONFIGURATIONS

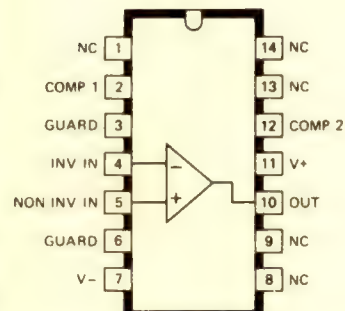
DIL PLASTIC PACK



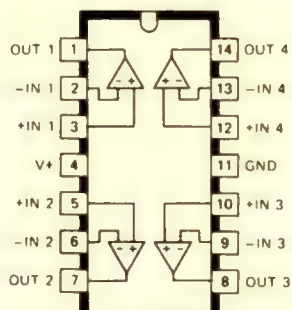
### LM301



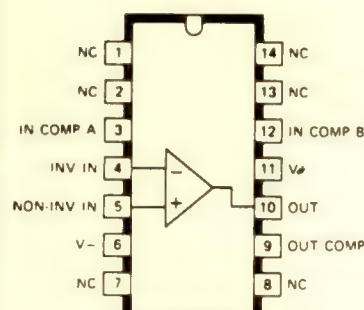
### LM308



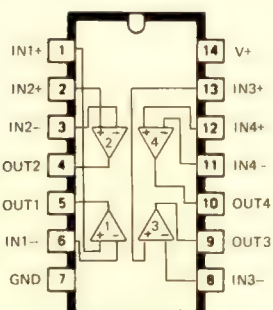
### LM324



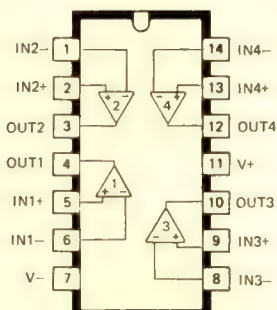
### LM709



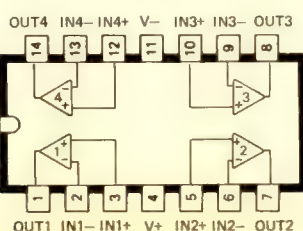
### LM3900



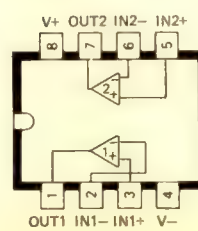
### UA4136



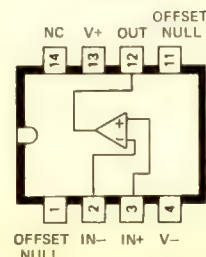
### TL071



### TL072



### TL074





# Understanding component values

William Fisher  
Roger Harrison

To the beginner in electronics, and to quite a few not-so-beginners, the values and units given to electronic components such as resistors, capacitors and RF chokes seem confusing. This article should clarify things for you.

THE DECIMAL point has been almost abolished in electronics. The little dot was so small it often disappeared when things were printed, and in any case not everybody recognises its meaning. The French, who invented the decimal system, use a comma instead, and so do most Europeans. Other countries use commas for different purposes, like separating hundreds from thousands in large numbers. So when you see a number written 1,500 you don't immediately know whether it's meant to be fifteen hundred or one-and-a-half to three decimal places! When engineers from all over the world sat down to decide on a standard international numbering system, they decided that the best thing to do with the decimal point/comma was to get rid of it altogether.

It has been replaced by a letter. To show where the decimal point was, any letter would do. For example, you might write one-and-a-half as 1a5 or 1b5 or 1c5, or you could use a capital letter, say 1P5 or 1Q5.

Normally in electronics you're not dealing with pure numbers. You're dealing with numbers of *some things* — so many volts, so many watts, amps, ohms and so forth. Most of these quantities have letters that are used as abbreviations for them. 5 V means 5 volts, for example, 5 A means 5 amps, 5 W means 5 watts. When you want to express fractional amounts of these quantities, you use the abbreviation letter in place of the decimal point, like this: 5V6, 1A5, 3W7. You don't have much trouble seeing that these last three mean 5-point-6 volts, 1-point-5 amps and 3-point-7 watts. Unfortunately, there isn't a letter of our alphabet that stands for ohms, but we're all quite used to seeing a capital R for resistance, so we use that to indicate ohms, like this: 4R7, 2R2, 100R. These mean of course 4-point-7 ohms, 2-point-2 ohms and 100 ohms.

## Mini and maxi units

Lots of things aren't commonly or conveniently measured in the standard size units. Capacitors, for example, are never measured in Farads, because a whole Farad is an enormous capacitance. Practical capacitors have values measured in thousandths, millionths and even smaller fractions of a Farad. At the other extreme, resistors often have values of thousands and millions of ohms. Now it's obviously inconvenient and confusing to write 0F000001 for one microfarad or 100 000R for one hundred kilohms, so what you do is alter the decimal-point-indicating letter to show the size of the units you are using. For example, 1k5. Clearly this means one-and-a-half somethings and from kilograms and kilometres everyone knows that the little letter 'k' indicates a thousand. So 1k5 must mean one-and-a-half

thousand, that is 1500. Similarly, 4k7 means 4700, 2k2 means 2200 and so forth. It's usually clear enough from the context whether you're talking about resistance or capacitance or frequency or whatever, so you don't need to write ohms or anything afterwards.

As well as k for one thousand, there are a number of other letters that stand for multiples of the basic unit. Here they are:

G (Giga) = 1 000 000 000 (one thousand million,  $10^9$ )  
M (Mega) = 1 000 000 (one million,  $10^6$ )  
k (kilo) = 1 000 (one thousand,  $10^3$ )  
m (milli) = 1/1000 (one thousandth,  $10^{-3}$ )  
u (micro) = 1/1 000 000 (one millionth,  $10^{-6}$ )  
n (nano) = 1/1 000 000 000 (one thousand millionth,  $10^{-9}$ )  
p (pico) = 1/1 000 000 000 000 (one billionth,  $10^{-12}$ )

Occasionally you'll come across *tera* (T) which is one million million ( $10^{12}$ ) and *femto* (f) which is one thousand billionth ( $10^{-15}$ ).

Armed with this information, you should be able to read almost any printed value of an electronic quantity. For practice, here are a few examples of values you might not be too familiar with. A capacitor marked as 47p has a value of 47 picofarads, which is 47 billionths of a Farad. One marked 4p7 has only a tenth the value, 4-point-7 billionths of a Farad. A 100n capacitor is 100 nanofarads or 100 = 1 000 000 000 Farads = 1/10 000 000 Farad. At the other end of the scale, a resistor marked as 15M has a value of 15 Megohms, i.e. 15 million ohms; one marked 1M5 has a value ten times less at 1-point-5 million ohms.

## Translation problems

The standard international numbering system makes everything simple as long as everybody sticks to it, but unfortunately there are still some occasions when you come across values written in an older style and you have to translate them into the new style. This mainly happens with capacitors.

The first problem is that the old symbol for 'micro' was different. It was a Greek letter called mu, which is pronounced like the noise a pussycat makes, and looks like this:  $\mu$ . This symbol caused some confusion in the past, because it sometimes got mistaken for m, which has always meant 'milli', a thousand times larger. So  $\mu$  was officially replaced by 'u'. If you see a capacitor marked, for example, 10 $\mu$ , you can translate that directly into 10u and know that it means 10 microfarads. Nevertheless,  $\mu$  is still widely used.

Another confusing thing is the still common practice of marking or specifying capacitor values in *fractions* of a microfarad, like 0.001 $\mu$  (1000p, or better, 1n). To convert fractions of a microfarad into modern values, you have to multiply

by 1000 to get the answer in nanofarads, or multiply by 1 000 000 and get the answer in picofarads. Don't panic! To save you trouble, here is a list of typical old-style values and how they translate into new style. From this list you should be able to work out very quickly the new-style version of any old-style capacitor value.

0.1 $\mu$ = 100n	0.47 $\mu$ = 470n
0.01 $\mu$ = 10n	0.047 $\mu$ = 47n
(10 000p)	
0.001 $\mu$ = 1n	0.0047 $\mu$ = 4n7
(1000p)	
0.0001 $\mu$ = 100p	0.00047 $\mu$ = 470p

## Small resistances

Resistors with small values sometimes cause difficulties. Because small resistances are not very commonly used, most people are not accustomed to thinking in terms of milliohms (thousandths of an ohm), so the little letter 'm' isn't used for resistors. A resistance of one-tenth of an ohm is not written 100m (for one hundred milliohms), but 0R1 (for one-tenth of an ohm). As usual, the letter R indicates the position of the decimal point and shows that the unit of measurement is whole ohms. In the same way, 2R2 means 2-point-2 ohms, 5R6 means 5-point-6 ohms and so forth. Even smaller values are still written as fractions of an ohm, but the 0 before the decimal-point-indicating letter is usually omitted. For instance, R01 means point-01 ohms (one hundredth of an ohm), R001 means point-001 ohms (one thousandth of an ohm), R33 means 33/100ths of an ohm and R068 means 68/1000ths of an ohm.

## Zeroes

Some component values are written with a zero before or after the multiplier character to indicate the value quite unambiguously. For example, a 1000 pF capacitor, rather than being written '1n' may be written 1n0. Or a point-1 (0.1) ohm resistor, rather than being written R1, may be written 0R1.

## Preferred values

Why is it that resistors and capacitors only seem to come in certain values? You almost never see a 25R resistor, only 22R or 27R ones. 600k resistors are likewise as rare as hens' teeth, but there are any number of 560k and 680k ones. For one thing, manufacturers can't make every possible value of resistor. If they made resistors in every whole number of ohms between 1R and 10M, they'd be making ten million different products and selling only a few of each. Very capital inefficient, as they say. Resistors would be ridiculously expensive and manufacturers would go bankrupt. Obviously, only a restricted number of values can be produced.

But why these peculiar values that actually are produced? What's so special about 4k7 or 56R or 820R? Why not stick to simple numbers? The reason is that these particular values allow the *least* number of different values to be made. How come? Well, resistors are not made with absolute accuracy — that costs too much and isn't usually necessary. Most circuits will accept a variation of 10% in resistor values without problems. So resistors are made with values that are

anything up to 10% higher or lower than their marked value. This is called a tolerance of 10% and such a resistor is usually called a 10% resistor. For example, a 100R, 10% resistor might have a value anywhere between 90R and 110R. Given this amount of variation, there would obviously be no point in also making 10% resistors with nominal values like 94R or 107R, because these values are already covered by the  $\pm 10\%$  spread of the 100R resistor.

So in a series of 10% resistors, what should be the next highest value above 100R? A value of, say, 111R would be too low, because the 111R resistor would also have a tolerance of 10%, so its possible values would spread down to below 100R, completely overlapping the upper range of variation of the 100R resistor. To avoid this kind of overlap, the next highest value 10% resistor needs to be about 120R. A 120R 10% resistor has its possible values spread between 108R and 132R. There's still a small overlap, but to get rid of the overlap completely without leaving a gap you'd need a value of one hundred and twenty two and two ninths ohms (work it out for yourself if you like algebra), which is rather an awkward number. 120R is a nice round number, so that's the 'preferred value' next in the series. By similar reasoning, the next value in the series of 10% resistors is 150R, then 220R, 270R, 330R, 390R, 470R, 560R, 680R, 820R and then 1k. It doesn't take much to see that the obvious next preferred value after 1k must be 1k2, then 1k5, 1k8 and so on. In other words, the same sequence of values keeps repeating, multiplied by ten at each repetition. This series of preferred values is known as the *E12 series*, because there are 12 values in the series. For reference, here are two 'decades' of the E12 series:

10	33
12	39
15	47
18	56
22	68
27	82

Even though resistors are nowadays more commonly made with a tolerance of 5%, the old E12 series of preferred values is still the most widely used. There is a similar series, called E24, which is worked out in just the same way as the E12 series, except that a tolerance of only 5% is assumed.

For closer tolerances, there's the E48 series (2%) and E96 series (1%) with, respectively, 48 and 96 values per decade.

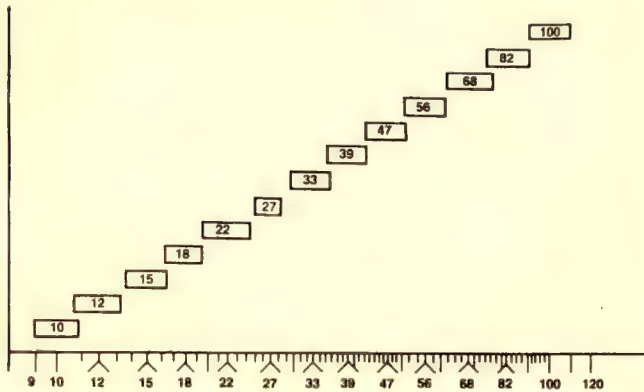
Capacitors are made to wider tolerances than resistors — 20% is not at all uncommon, so they are usually supplied in a restricted range of preferred values. The significant figures in this series are 10, 15, 22, 33, 47 and 68. As there are only six values per decade, it is called the E6 series.

Close tolerance values are written in the same way as we've described previously, so if you come across a 1k02 resistor or a 34p8 capacitor you'll know you're dealing with close tolerance components. In the first case, you have a 1020 ohm resistor, in the second case you have a 34.8 pF capacitor. ●



# Understanding component values

cont,



This shows the tolerance extremes of all the values in the E12 series, represented by a horizontal bar. The left hand end and right hand ends of each bar represent, respectively, the lower limit and the upper limit of the value. Most overlap, you will note.

Preferred numbers in a decade for the E6, E12, E24 & E96 series									
E6 20%	E12 10%	E24 5%	E96 1% and 2%						
			1%	2%					
10	10	10	10.0	10.2	10.5	10.7			
	11	11	11.0	11.3	11.5	11.8			
	12	12	12.1	12.4	12.7				
	13	13	13.0	13.3	13.7	14.0	14.3	14.7	
15	15	15	15.0	15.4	15.8				
	16	16	16.2	16.5	16.9	17.4	17.8		
	18	18	18.2	18.7	19.1	19.6			
	20	20	20.0	20.5	21.0	21.5			
22	22	22	22.1	22.6	23.2	23.7			
	24	24	24.3	24.9	25.5	26.1	26.7		
	27	27	27.4	28.0	28.7	29.4			
	30	30	30.1	30.9	31.6	32.4			
33	33	33	33.2	34.0	34.8	35.7			
	36	36	36.5	37.4	38.3				
	39	39	39.2	40.2	41.2	42.2			
	43	43	43.2	44.2	45.3	46.4			
47	47	47	47.5	48.7	49.9				
	51	51	51.1	52.3	53.6	54.9			
	56	56	56.2	57.6	59.0	60.4			
	62	62	61.9	63.4	64.9	66.5			
68	68	68	68.1	69.8	71.5	73.2			
	75	75	75.0	76.8	78.7	80.6			
	82	82	82.5	84.5	86.6	88.7			
	91	91	90.9	93.1	95.3	97.6			

Tolerance extremities for the E6, E12 and E24 preferred value series						
-20%	-10%	-5%	nominal value	+5%	+10%	+20%
8	9	9.5	10	10.5	11	12
		10.5	11	11.6		
	10.8	11.4	12	12.6	13.2	
		12.4	13	13.7		
12	13.5	14.3	15	15.8	16.5	18
		15.2	16	16.8		
	16.2	17.1	18	18.9	19.8	
		19.0	20	21.0		
17.6	19.8	20.9	22	23.1	24.2	26.4
		22.8	24	25.2		
	24.3	25.7	27	28.4	29.7	
		28.5	30	31.5		
26.4	29.7	31.4	33	34.7	36.3	39.6
		34.2	36	37.8		
	35.1	37.1	39	41.0	42.9	
		40.9	43	45.2		
37.6	42.3	44.7	47	49.4	51.7	56.4
		48.5	51	53.6		
	50.4	53.2	56	58.8	61.6	
		58.9	62	65.1		
54.4	61.2	64.6	68	71.4	74.8	81.6
		71.3	75	78.8		
	73.8	77.9	82	86.1	90.2	
		86.5	91	95.6		
E6	E12	E24		E24	E12	E6
lower extremities				upper extremities		

## QUICK REFERENCE OP-AMP SURVEY

Reprinted by courtesy of  
Electronics Today International  
see August 79 issue

There are so many different operational amplifiers on the market that we thought it was about time that we did a mini-survey of what's available.

The headings on the table should be fairly self-explanatory, except perhaps for the second-last column, which gives the number of devices in a package — S: single, D: dual and Q: quad.

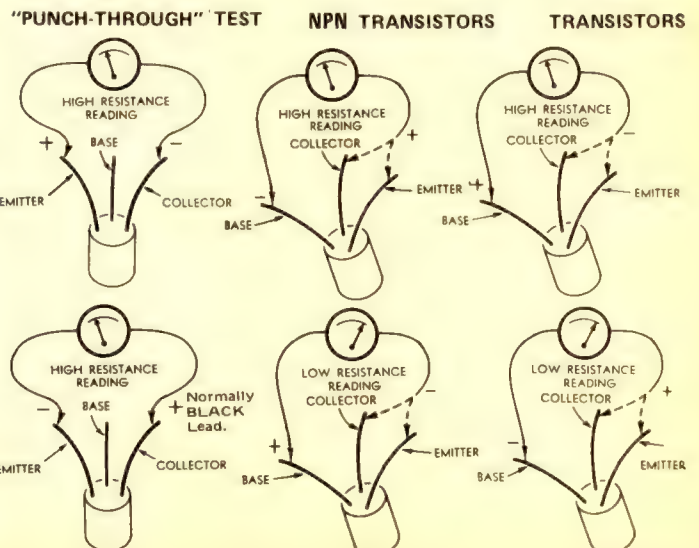
CMRR is short for common-mode rejection ratio. This means that, if both the inverting and the non-inverting inputs of the device are tied together and a signal applied, the CMRR gives you the ratio between the applied signal and the output. Of course, in an ideal op amp, there would be no output and the CMRR would be infinite.

Op amp types	Input offset voltage mV	Input bias current nA	Type of input structure	Bandwidth MHz	Slew rate V/μs	Voltage gain dB	Maximum supply voltage V	CMRR dB	Qty	COMMENTS
709	2	300	NPN	1	0.25	90	±18	90	S	Needs frequency compensation
307	2	70	NPN	1	0.25	100	±18	90	S	Internal frequency compensation
301	2	70	NPN	10	0.5	100	±18	90	S	Needs frequency compensation
741	2	80	NPN	1	0.5	106	±18	90	S	Internal frequency compensation
748	1	120	NPN	10	0.5	103	±22	90	S	A decompensated 741
300	2	1.5	NPN	3	0.5	110	±18	100	S	Low supply current drain 0.3 mA Needs frequency compensation Very low differential input voltage range
318	4	150	NPN	15	50	106	±20	100	S	Very low differential input voltage range. Sometimes needs frequency compensation
747	2	80	NPN	1	0.5	106	±18	90	D	Internal frequency compensation
1458	1	80	NPN	1	0.8	103	±18	90	D	Internal frequency compensation
4136	0.5	40	PNP	3	1.0	110	±18	100	D	Low noise
3900	Current inputs	30	Current sinks	2.5	0.5	70	±18	—	Q	Current balancing amplifier
3401				20						
324	2	45	PNP	1	0.5	100	±30	70	Q	Ground sensing inputs Output voltage can go to ground Low power. 0.8 mA drain per IC
3403	2	150	PNP	1	1.2	100	±36	90	Q	Ground sensing inputs Class AB output Output voltage can go to ground Low power 3 mA drain per IC
348	1	30	NPN	1	0.5	103	±18	90	Q	Low power 2.4 mA drain per IC Class AB output
RC4739	2	40	PNP	3	1	110	±18	100	D	Raytheon device only Low noise audio amplifier
uA739	1	300	NPN	10	1	86	±18	90	D	Fairchild device only Low noise audio amplifier Needs frequency compensation
LM381	Not applicable		NPN	15	—	112	±20	—	D	Low noise amplifier Internally compensated
CA3130	8	0.005	MOSFET	15	10	110	+16	90	S	Ground sensing inputs Very high input impedance Needs frequency compensation
CA3140	8	0.010	MOSFET	4.5	9	100	+36	90	S	Ground sensing inputs Very high input impedance
CA3160	6	0.005	MOSFET	4	10	110	+15	90	S	Ground sensing inputs Very high input impedance
NE531	2	400	NPN	10	35	96	±22	100	S	Very fast op amp Needs frequency compensation
RC4631										
TL080	15	0.4	JFET	3	13	83	±18	70	S	Pin for pin replacement for 748
TL081	15	0.4	JFET	3	13	83	±18	70	S	JFET input op amps, with fast slew rate and wide bandwidth
TL082	15	0.4	JFET	3	13	83	±18	70	D	1458
TL083	15	0.4	JFET	3	13	83	±18	70	D	747
TL084	15	0.4	JFET	3	13	83	±18	70	Q	324

## QUICK TRANSISTOR CHECK

These diagrams illustrate a handy method of checking any transistor with a multimeter switched to a low Ohms range.

NOTE: Battery (+) positive on most multimeters is the BLACK lead — NOT the RED lead.

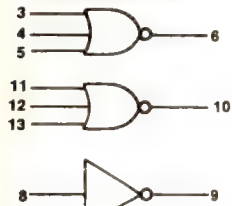




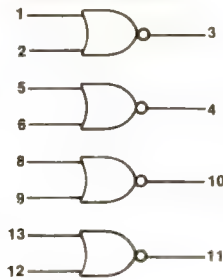
# DATA SECTION

## 4000 SERIES CMOS IC's

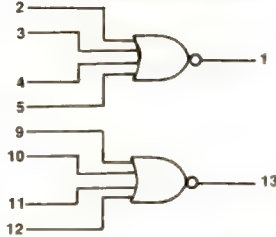
**4000 NOR Gate**



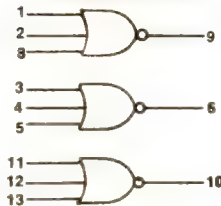
**4001 NOR Gate**



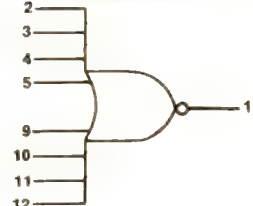
**4002 NOR Gate**



**4025 NOR Gate**



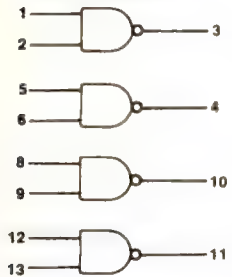
**4078 Nor Gate**



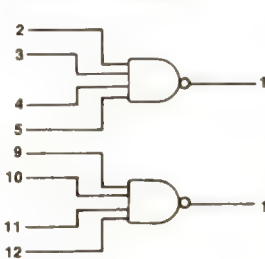
**NOR Gate Truth Table**

INPUTS	OUTPUTS
0 0 0 0	1
Any other combination	0

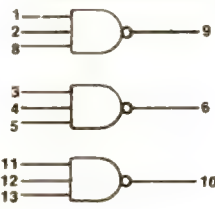
**4011 NAND Gate**



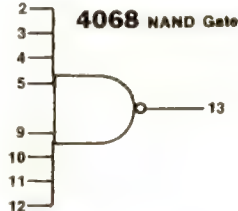
**4012 NAND Gate**



**4023 NAND Gate**



**4068 NAND Gate**



V<sub>DD</sub> - 14  
V<sub>SS</sub> - 7

**NAND Gate Truth Table**

INPUTS	OUTPUTS
1 1 1 1	0
Any other combination	1

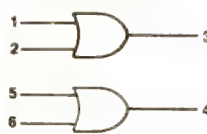
## Care with MOS!

When soldering MOS (metal-oxide silicon) integrated circuits onto a PCB more than usual care has to be taken. As well as ensuring the IC gets no hotter than necessary (as you would with conventional ICs) the following safety precautions should be taken:

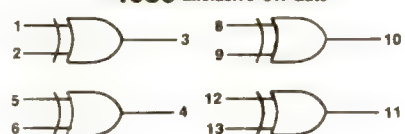
- Wire all other components onto the board first
- Make sure the soldering iron tip and barrel are reliably earthed
- Connect the earthy supply lead of the board to the same earth until all MOS ICs are soldered in place
- Handle the ICs as little as possible before fitting them. Leave them in their conductive packaging
- Solder the earthy and positive supply pins of each IC to their PC pad before soldering the other pins



**4071 OR Gate**



**4030 Exclusive OR Gate**



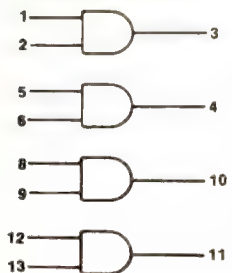
**OR Gate Truth Table**

INPUTS	OUTPUTS
0 0 0 0 0	0
Any other combination	1

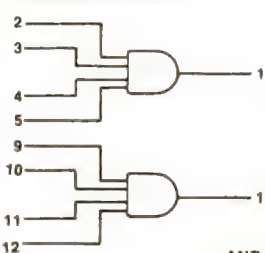
**Exclusive OR Gate Truth Table**

INPUT A	INPUT B	OUTPUT
0	0	0
1	0	1
0	1	1
1	1	0

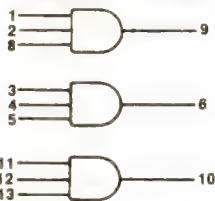
**4081 AND Gate**



**4082 AND Gate**



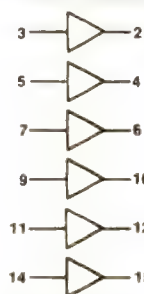
**4073 AND Gate**



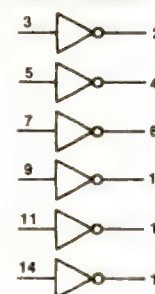
**AND Gate Truth Table**

INPUTS	OUTPUTS
1 1 1 1	1
Any other combination	0

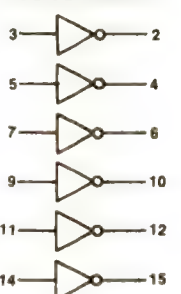
**4050 BUFFER**



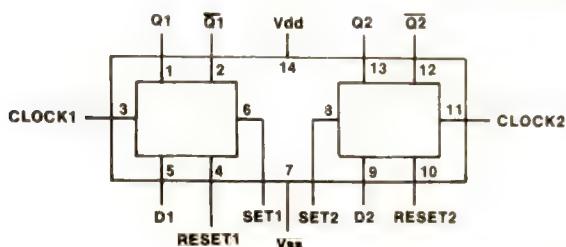
**4009 INVERTER**



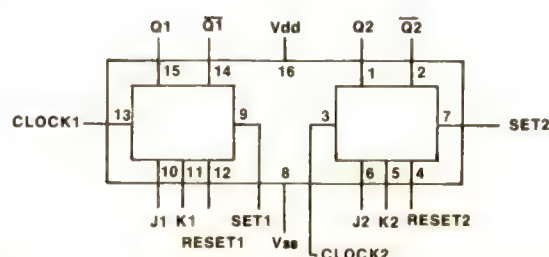
**4049 INVERTER**



V<sub>CC</sub> - 1 V<sub>DD</sub> - 16  
V<sub>SS</sub> - 8

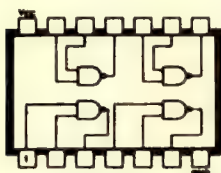
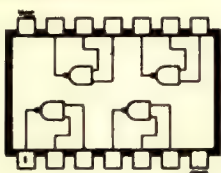
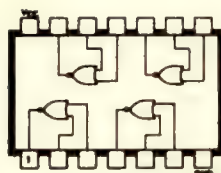
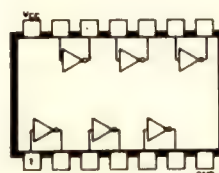
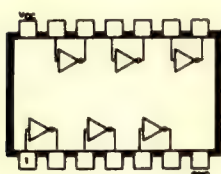
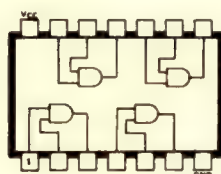
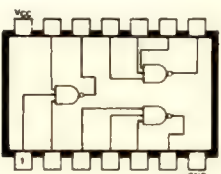
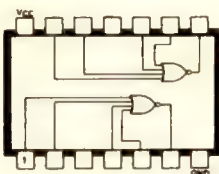
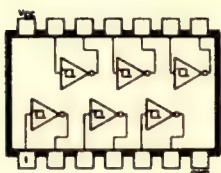
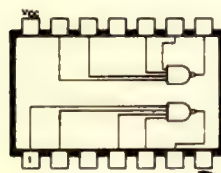
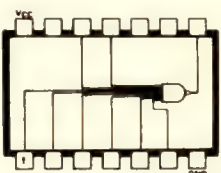
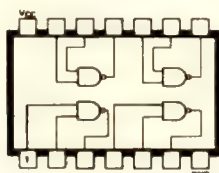
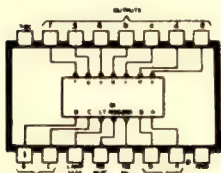
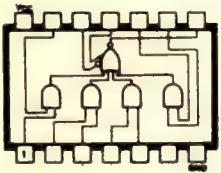
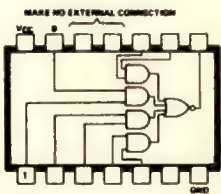
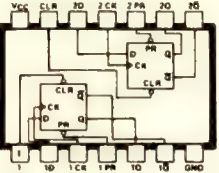
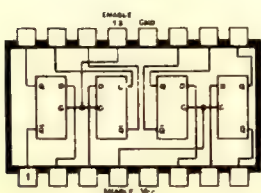
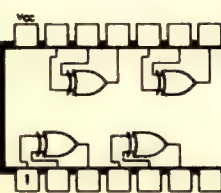
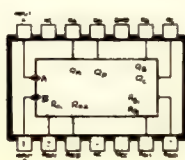
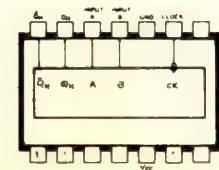


**4013 DUAL D-TYPE FLIP-FLOP**



**4027 DUAL J-K FLIP-FLOP**







**TTL DIGITAL IC's**
**7400**
**QUADRUPLE 2-INPUT POSITIVE-NAND GATES**

**7401**
**QUADRUPLE 2-INPUT POSITIVE-NAND GATES WITH OPEN-COLLECTOR OUTPUTS**

**7402**
**QUADRUPLE 2-INPUT POSITIVE-NOR GATES**

**7404**
**HEX INVERTERS**

**7405**
**HEX INVERTERS WITH OPEN-COLLECTOR OUTPUTS**

**7408**
**QUADRUPLE 2-INPUT POSITIVE-AND GATES**

**7410**
**TRIPLE 3-INPUT POSITIVE-NAND GATES**

**7413**
**DUAL 4-INPUT POSITIVE-NAND SCHMITT TRIGGERS**

**7414**
**HEX SCHMITT-TRIGGER INVERTERS**

**7420**
**DUAL 4-INPUT POSITIVE-NAND GATES**

**7430**
**8-INPUT POSITIVE-NAND GATES**

**7437**
**QUADRUPLE 2-INPUT POSITIVE-NAND BUFFERS**

**7447**
**BCD-TO-SEVEN SEGMENT DECODER/DRIVER**

**7453**
**EXPANDABLE 4-WIDE AND-OR-INVERT GATES**

**7454**
**4-WIDE AND-OR-INVERT GATES**

**7474**
**DUAL D-TYPE POSITIVE-EDGE-TRIGGERED FLIP-FLOPS WITH PRESET AND CLEAR**

**7475**
**4-BIT BISTABLE LATCHES**

**7486**
**QUADRUPLE 2-INPUT EXCLUSIVE-OR GATES**

**7490**
**DECADE COUNTER**

**7491**
**8-BIT SHIFT REGISTERS**





## SIMPLE DIGITAL CIRCUITS

### GATES

SYMBOL	CODE
 <p>“AND” GATE</p>	<p>Output is “on” only when all inputs are “on”. Output is “off” when any or all inputs are “off”.</p>
 <p>“NAND” GATE</p>	<p>Output is “off” only when all inputs are “on”. Output is “on” when any or all inputs are “off”.</p>
 <p>“NOR” GATE</p>	<p>Output is “on” only when all inputs are “off”. Output is “off” when any or all inputs are “on”.</p>
 <p>“OR” GATE</p>	<p>Output is “off” only when all inputs are “off”. Output is “on” when any or all of the inputs are “on”.</p>


### INVERTERS

SYMBOL	CODE
 <p>INVERTER</p>	<p>Output is “on” only when the input is “off”. Output is “off” only when the input is “on”.</p>

### FLIP-FLOPS

A flip-flop can be compared with a push button switch connected to two lamps. When the button is pushed and released, one of the lamps will turn “on” and the other “off”. If the button is again pushed and released, the lamp that was “off” will


now turn “on” and the lamp that was “on” will turn “off”. There are many different types of flip-flops, but they all operate basically in the same way. The difference is in the number and type of inputs.

SYMBOL	CODE
 <p>FLIP-FLOP</p>	<p>“Q” output is “on” when “Q̄” output is “off”. “Q” output is “off” when “Q̄” output is “on”. Outputs change when the input is turned “off”.</p>

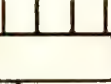
### LATCH

A latch is a flip-flop designed to store information until it is needed. It has an extra latch input. When the latch is turned on, the information on the input will be transferred to the “Q” output.

When the latch is turned “off”, the information that was on the input at the time the latch was turned off, will be stored on the “Q” output.

SYMBOL	CODE
 <p>LATCH</p>	<p>“Q” output will follow the information input. “Q̄” output will always be the opposite of the “Q” output.</p>

### COUNTERS

SYMBOL	CODE
 <p>COUNTER</p>	<p>As the input is turned “on” and “off” the count is accumulated on the outputs in either binary or decimal form depending on circuit. Counters are easily cascaded by using the highest output as the next input. When full the counter will automatically reset to zero. To use as a “N” divider the reset pin is connected to the required digit plus one.</p>

## TTL and CMOS. FUNCTIONALLY EQUIVALENT TYPES

TTL	CMOS
7400	4011
7401	40107
7402	4001
7404	4009
7406	4009
7407	4010
7408	4081
7410	4023
7411	4073
7420	4012
7425	4002
7427	4025
7428	4001
7430	4068
7432	4071
7437	4011
7440	4012
7442	4028
7445	4028
7466	4511
7447	4511
7448	4511
7449	4511
7450	4085
7453	4086
7454	4086
7470	4096
7472	4095
7473	4027
7474	4013
7475	4042
7476	4027
7477	4042
7478	4027
7483	4008
7485	4063
7486	4030
7490	4518
7491	4015
7493	4520
7494	4035
7495	40104
7499	40104
74100	4034
74104	4095
74105	4095
74107	4027
74110	4095
74111	4027
74121	4047
74122	4047
74123	4098
74125	4502
74126	4502
74132	4093
74136	4030
74141	4028
74145	4028
74148	4532
74150	4067
74151	4051
74152	4051
74153	4052
74154	4514
74155	4555
74156	4555
74157	4019
74164	4015
74165	4021
74166	4014
74167	4527
74173	4076
74178	4035
74179	4035
74180	40101
74181	40181
74182	40182
74190	4510
74191	4516
74194	40104
74195	4035
74198	4034
74200	4061
74251	4051
74279	4044
74283	4008
74290	4518
74293	4520

NOTE: WE DO NOT STOCK ALL ITEMS LISTED



## 555 TIMER

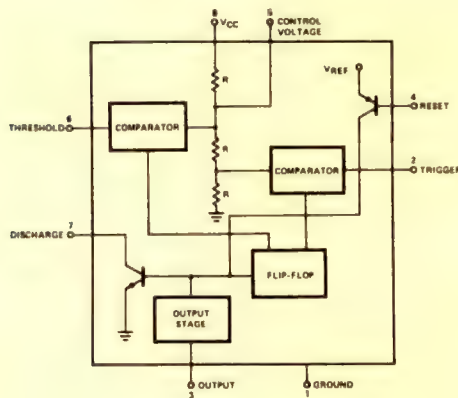
The 555 Timer is a highly versatile low-cost IC specifically designed for precision timing applications. It can also be used in monostable multi-vibrator, astable multivibrator, and Schmitt trigger applications.

The 555 has many attractive features. It can operate from 4.5V to 16V. Its output can source (supply) or sink (absorb) and load current up to a maximum of 200 mA, and so can directly drive loads such as relays, LED's, low-power lamps, and high impedance speakers. When used in the 'timing' mode, the IC can readily produce accurate timing periods variable from a few microseconds to several hundred seconds via a single R-C network. Timing periods are virtually independent of supply rail voltage, have a temperature coefficient of only .005% per °C, can be started via a TRIGGER command signal, and can be aborted by a RESET command signal.

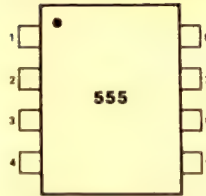
When used in the monostable mode, the IC produces output pulses with typical rise and fall times of a mere 100 nS

When used in the astable mode both the frequency and the duty cycle of the waveform can be accurately controlled with two external resistors and one capacitor.

## BLOCK DIAGRAM



## PIN CONFIGURATIONS



### V PACKAGE (Top View)

1. Ground
2. Trigger
3. Output
4. Reset
5. Control Voltage
6. Threshold
7. Discharge
8. VCC

## ABSOLUTE MAXIMUM RATINGS

Supply Voltage	+18V
Power Dissipation	600 mW
Operating Temperature Range	0°C to +70°C
Storage Temperature Range	-85°C to +150°C
Lead Temperature (Soldering, 60 seconds)	+300°C

## ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C, V<sub>CC</sub> = +5 V. to +15 unless otherwise specified)

PARAMETER	TEST CONDITIONS	NE 555			UNITS
		MIN	TYP	MAX	
Supply Voltage	V <sub>CC</sub> = 5V R <sub>L</sub> = ∞	4.5		16	V
Supply Current	V <sub>CC</sub> = 15V R <sub>L</sub> = ∞		3	6	mA
	Low State, Note 1		10	15	mA
Timing Error	R <sub>A</sub> , R <sub>B</sub> = 1KΩ to 100KΩ C = 0.1 μF		1		%
Initial Accuracy			50		ppm/°C
Drift with Temperature			0.01		%/Volt
Drift with Supply Voltage			2/3		X V <sub>CC</sub>
Threshold Voltage	V <sub>CC</sub> = 15V		5		V
Trigger Voltage	V <sub>CC</sub> = 5V		1.67		V
Trigger Current			0.5		μA
Reset Voltage		0.4	0.7	1.0	V
Reset Current			0.1		mA
Threshold Current			0.1	.25	μA
Control Voltage Level	V <sub>CC</sub> = 15V	9.0	10	11	V
	V <sub>CC</sub> = 5V	2.6	3.33	4	V
Output Voltage Drop (low)	V <sub>CC</sub> = 15V		0.1	.25	V
	I <sub>SINK</sub> = 10mA		0.4	.75	V
	I <sub>SINK</sub> = 50mA		2.0	2.5	V
	I <sub>SINK</sub> = 100mA		2.5		V
	I <sub>SINK</sub> = 200mA				V
Output Voltage Drop (high)	V <sub>CC</sub> = 5V		.25	.35	V
	I <sub>SINK</sub> = 8mA				V
	I <sub>SINK</sub> = 5mA				V
	I <sub>SOURCE</sub> = 200mA		12.5		V
	V <sub>CC</sub> = 15V	12.75	13.3		V
Rise Time of Output	I <sub>SOURCE</sub> = 100mA	2.75	3.3		V
	V <sub>CC</sub> = 15V	100			nsec
	V <sub>CC</sub> = 5V	100			nsec
Fall Time of Output					nsec

## MONOSTABLE OPERATION

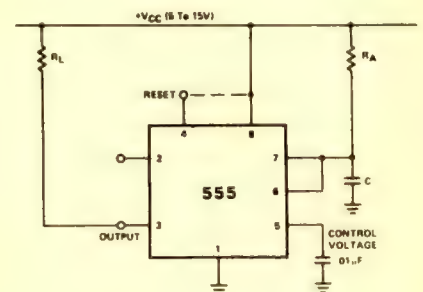
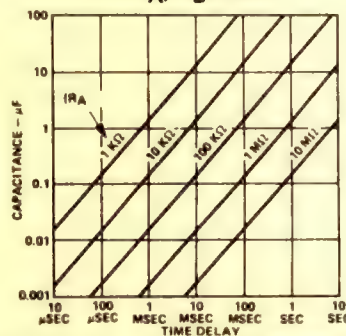
In the monostable mode, the timer functions as a one-shot. Referring to circuit the external capacitor is initially held discharged by a transistor inside the timer

When a negative trigger pulse is applied to lead 2, the flip-flop is set, releasing the short circuit across the external capacitor and drives the output HIGH. The voltage across the capacitor, increases exponentially with the time constant  $t = R_1 C_1$ . When the voltage across the capacitor equals  $2/3 V_{CC}$ , the comparator resets the flip-flop which then discharges the capacitor rapidly and drives the output to its LOW state.

The circuit triggers on a negative-going input signal when the level reaches  $1/3 V_{CC}$ . Once triggered, the circuit remains in this state until the set time has elapsed, even if it is triggered again during this interval. The duration of the output HIGH state is given by  $t = 1.1 R_1 C_1$ . The timing interval is independent of supply

When Reset is not used it should be tied high to avoid any possibility of false triggering.

### TIME DELAY vs R<sub>A</sub>, R<sub>B</sub> AND C



## ASTABLE OPERATION

When the circuit is connected as shown it triggers itself and free runs as a multivibrator. The external capacitor charges through R<sub>1</sub> and R<sub>2</sub> and discharges through R<sub>2</sub> only. Thus the duty cycle may be precisely set by the ratio of these two resistors.

In the astable mode of operation, C<sub>1</sub> charges and discharges between  $1/3 V_{CC}$  and  $2/3 V_{CC}$ . As in the triggered mode, the charge and discharge times and therefore frequency are independent of the supply voltage

The charge time (output HIGH) is given by

$$t_1 = 0.693 (R_1 + R_2) C_1$$

and the discharge time (output LOW) by:

$$t_2 = 0.693 (R_2) C_1$$

Thus the total period T is given by:

$$T = t_1 + t_2 = 0.693 (R_1 + 2R_2) C_1$$

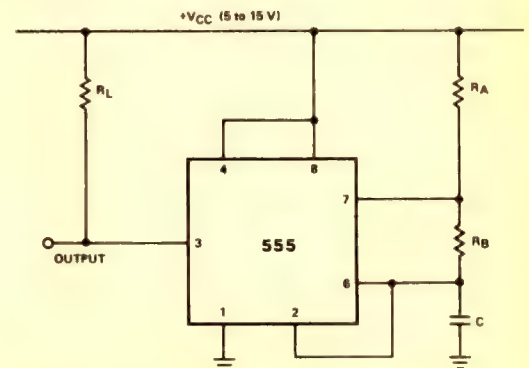
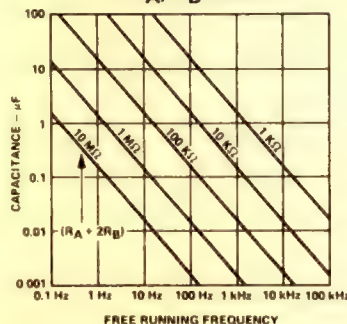
The frequency of oscillation is then:

$$f = \frac{1}{T} = \frac{1.44}{(R_1 + 2R_2) C_1}$$

The duty cycle is given by: D =

$$\frac{R_2}{R_1 + 2R_2}$$

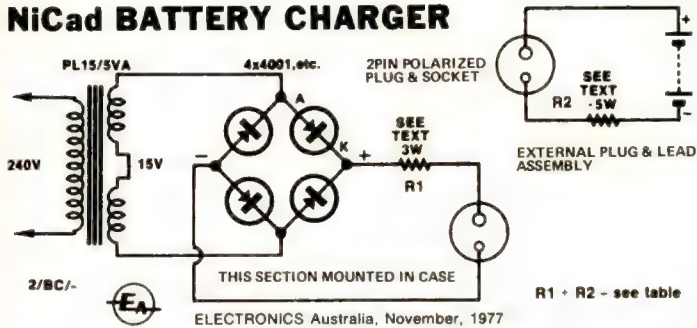
### FREE RUNNING FREQUENCY vs R<sub>A</sub>, R<sub>B</sub> AND C





## CIRCUIT IDEAS

### NiCad BATTERY CHARGER



ELECTRONICS Australia, November, 1977

The amount of resistance needed for any particular battery can be determined experimentally, but a preliminary calculation will help, and can be quite accurate. Using Ohm's law, simply divide the voltage to be developed across the resistor by the charging current required. For example: five "C" cells require 7.5V at

180mA. Assuming a supply voltage of 15, 7.5V needs to be developed across the resistor. Divided by 0.18A, this gives 42 ohms. Assuming this was the largest battery to be charged, this resistor would be fitted internally and should have at least a 3W rating.

To charge 4 "AA" cells at 45mA add 150 ohms in the external lead or, for

### RESISTANCE TABLE

Size	Capacity	Charge Rate	1 cell	2 cells	4 cells	5 cells
N	150mAH	15mA	900	800	600	500
AA	450mAH	45mA	300	270	200	166
Sub C	1.2AH	120mA	112	100	75	62
C	1.8AH	180mA	75	66	50	42
D	4AH	400mA	33	30	22	18

The figures in the four right hand columns indicate the total resistance (in ohms) required for a particular combination of cells. As indicated in the text some of this resistance is best located inside the charger. Note that not all cells of the same physical size have the same capacity or charge rate. In all cases the instructions on the cell should be followed.

two cells, add 220 ohms. An even smaller battery is a very small 9V type, similar to the type 216 carbon-zinc battery. This can be readily accommodated and requires a lead resistor of 620 ohms.

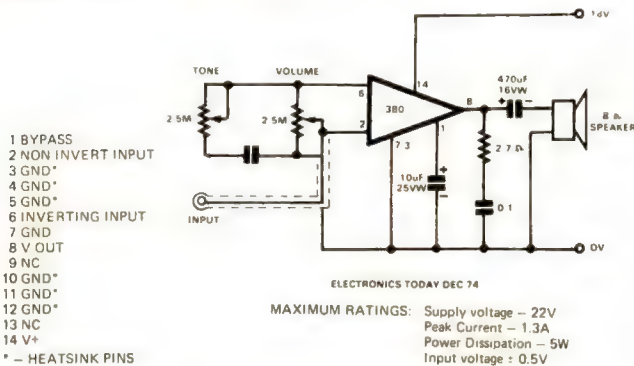
For those who may be dubious about their ability to perform these calculations we have prepared a table

showing calculated values for typical cell combinations.

These values should be checked experimentally and, if any small adjustment is required, this is best done when the battery is fully charged. Variation in current over the charging period should not be more than about 10%.

### LM380 AMPLIFIER

The LM380 is an audio amplifier IC with gain internally fixed at 34dB. It has high input impedance, low distortion and operates from a wide supply range.

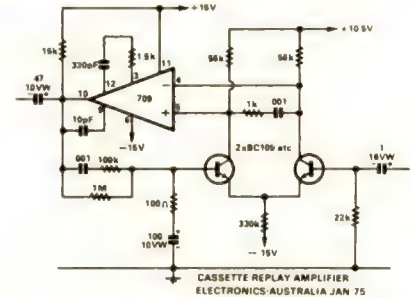


\* - HEATSINK PINS

### uA709 PREAMP

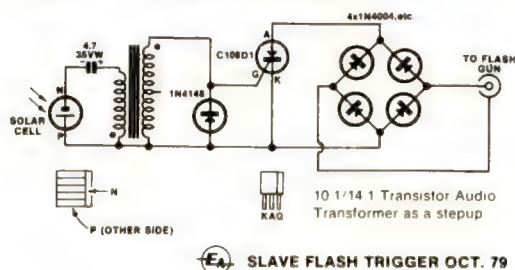
The uA709 is a high performance monolithic op amp with differential inputs. It has high open loop gain, high input impedance, wide input common mode and output voltage ranges and low temperature drift.

- 1 NC
- 2 NC
- 3 INPUT FREQ COMP
- 4 INVERTING INPUT
- 5 NON INVERT. INPUT
- 6 V-
- 7 NC
- 8 NC
- 9 OUTPUT FREQ COMP
- 10 OUTPUT
- 11 V+
- 12 INPUT FREQ COMP
- 13 NC
- 14 NC



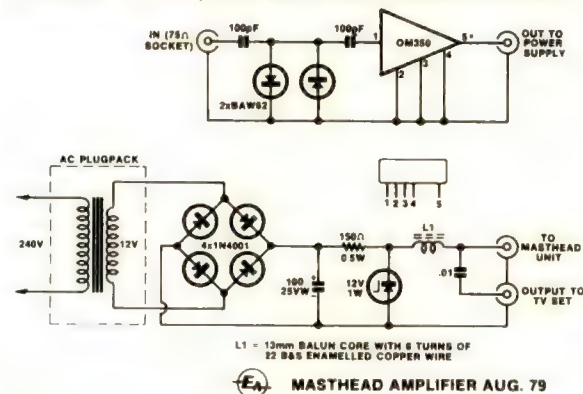
MAXIMUM RATINGS: Supply voltage - 18V  
Differential input voltage - 5V  
Power dissipation - 250mW  
Open loop gain - 45,000

### PHOTOCELL FLASH TRIGGER



The circuit uses a low-cost solar cell as the light sensor.

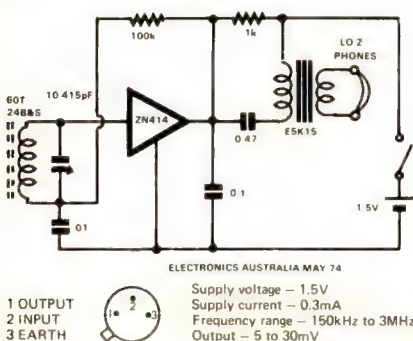
### OM350 T.V./F.M. MASTHEAD AMP.



L1 - 12mm BALUN CORE WITH 8 TURNS OF 22 B&S ENAMELLED COPPER WIRE

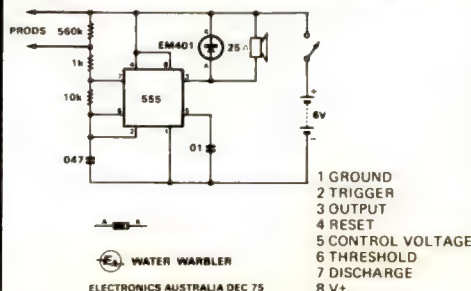
### ZN414 IC RADIO

The ZN414 is almost a radio receiver on a single chip. With the addition of a couple of components, the receiver is complete.

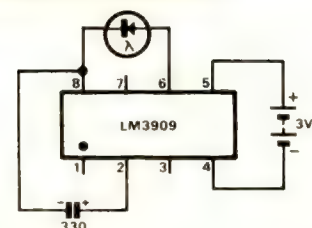


### 555 MOISTURE INDICATOR

The NE555 IC is a versatile electronic timer IC with delays ranging from microseconds through hours. It operates in both astable and monostable mode.



### LM3909 FLASHER



The LM3909 is an oscillator specifically designed to flash LEDs. It works at low voltages with very low current drain. Circuits published in "Electronics Australia" July 1975.



## WIRING EXTENSION SPEAKERS

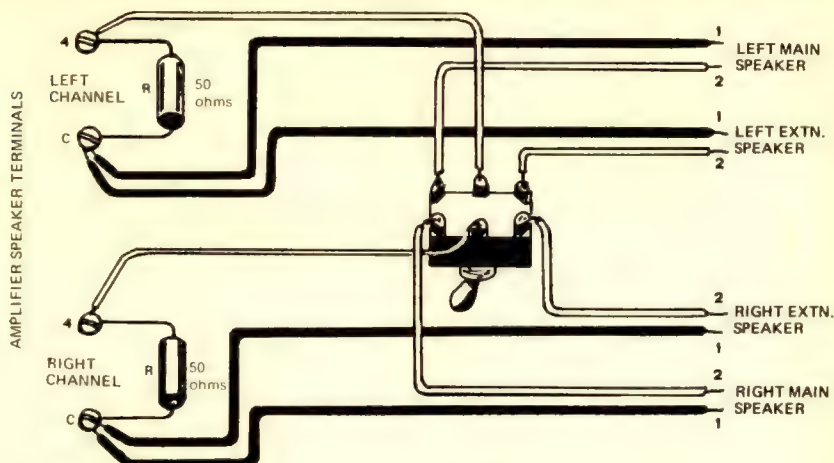
Modern transistor amplifiers operate best with load impedances between four and eight ohms, and as the power developed in the load is proportional to load impedance, one cannot just wire extra speakers in parallel with the existing ones without possibly overloading the amplifier.

Generally, load impedances of less than four ohms may damage the amplifier, whilst impedances greater than 16 ohms will prevent the amplifier developing full power.

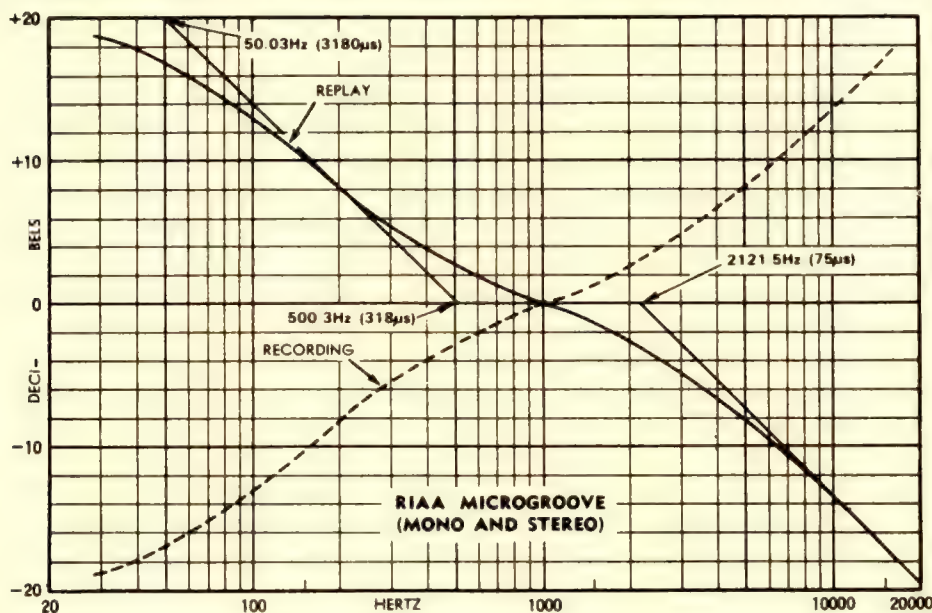
The circuit shown here assumes that the amplifier is designed for a load impedance of between four and eight ohms.

The basic rule for connecting extension speakers is that - providing the amplifier is not overloaded - any combination of speakers of similar or different impedances may be connected in parallel, but speakers connected in series must have similar impedances. If speakers of differing impedances are connected in series, each will affect the distribution of power/frequency connected to the remainder, for example one speaker may end up with predominantly high frequency response and another may have little high frequency response.

In calculating the combined impedance of several speakers use the formulae for combining resistors, using the loudspeaker impedances as resistance values.

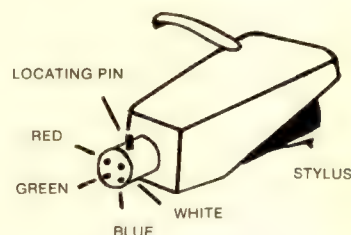


## R.I.A. FREQUENCY RESPONSE CURVE FOR MICROGROOVE RECORDS



## HEADSHELL CONNECTIONS

	SIGNAL	GROUND
LEFT	WHITE	BLUE
RIGHT	RED	GREEN



## DIN, JACK & PHONO CONNECTORS

### DIN CONNECTORS

The DIN series of plug and socket connectors was devised by the German Industrial Standards Board and, in the absence of any other acceptable guide-lines, has become widely accepted for the inter-connections of pickups, tuners, tape recorders, audio amplifiers and loudspeakers.

The basic DIN plug for monophonic audio circuits is the 3 pin type. It will be found that pin 2 is generally connected to earth (chassis).

For stereo audio circuits the 5 pin DIN plug is utilised which has the two additional pins located between pins 1 and 2 and between pins 2 and 3 of the basic 3 pin plug. Again, in all cases the pin 2 is earth or chassis.

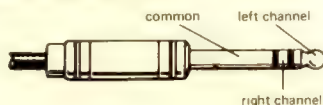
The connector with the one flat pin and one round pin is intended for use with loudspeakers since it is not reversible. This factor is most important with loudspeakers in a stereo system where correct 'phasing' of the speakers must be maintained once it has been correctly determined.



(View looking at socket lugs)

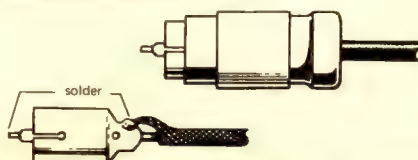
### JACK PLUGS AND SOCKETS

The standard jack plug is 1/4" in diameter and is mostly used on microphones, for which all metal shielded versions are available and on headphones. The connections for the jack plug used with stereo headphones are -



### 'PHONO' PLUGS AND SOCKETS

These single pole connectors are widely used on audio equipment, using single way screened cable for input connections, such as from a microphone or pickup, or twin cable for the wiring of loudspeakers.



## WIRING A MAINS PLUG

### TAKE CARE...

Mistakes can be fatal. Take extra care to get the green earth connection correct. Run each wire round the 'hook' provided to help prevent the wire coming off, if the lead is accidentally pulled.





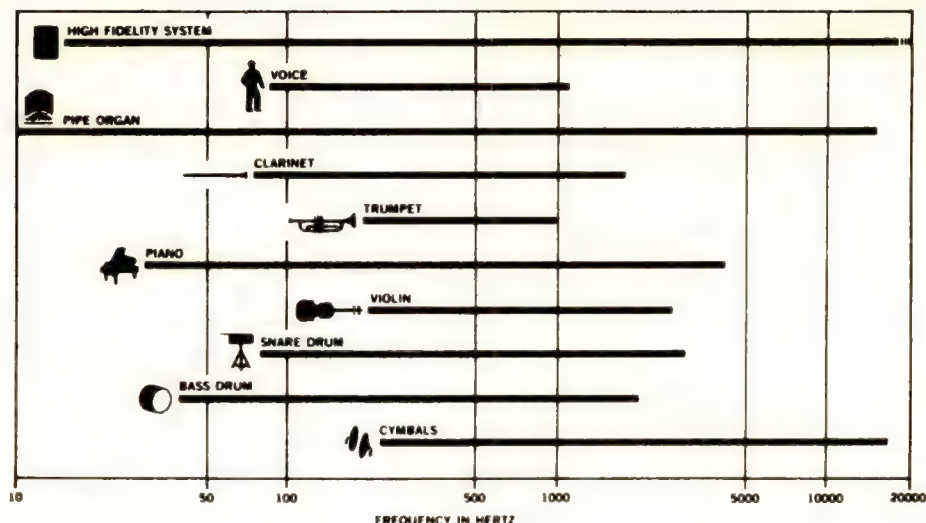
# DATA SECTION

## MUSIC FREQUENCIES

### FREQUENCY SPECTRUM OF MUSICAL INSTRUMENTS

A large pipe organ or its electronic equivalent can produce fundamental note frequencies over virtually the entire frequency spectrum audible to humans. The fundamental note frequencies available from other instruments is much more limited but, because individual notes involve harmonics and overtones in addition to the fundamental, the actual frequency range involved extends much further upwards than the solid lines would suggest. It is for this reason that a high fidelity amplifier system needs to have a response at least equal to the frequency range of human listeners to do justice to the majority of sound sources.

**HUMAN HEARING:** People up to their mid twenties, with good ears can typically hear frequencies to 15-17kHz. Between 20 and 40, the limit diminishes gradually to 11-12kHz. In the group 40-60 the limit falls to 8kHz while people 70 and over cannot expect to hear much beyond 4 to 5kHz.



### PIANO KEYBOARD



The number of keys on a piano keyboard varies from one instrument to another but the above is typical. If tuned to present day standard pitch middle C is at 261.6Hz (to 4 significant figures), other C notes being as shown. Standard pitch is based on A above middle C being 440Hz precisely. In tempered scale

tuning, the octave (2 : 1) ratio is divided into 12 equal (ratio) steps so that each semitone in any octave is related to adjacent semitones by a ratio equal to the 12th root of 2. To 8 significant figures this works out to 1.0594631.

### ORGAN KEYBOARD

Organ keyboards are normally shorter than piano keyboards, 61 notes as above being one standard. When using a basic stop, normally designated as 8 ft. or 8', the fundamental frequency produced by the keys is the same as for a piano, assuming standard pitch and tempered scale. If a 16ft stop is used instead, all frequencies are halved. Other stops give higher frequencies as indicated. While the 4ft, 2ft and 1ft are simple octave relationships, others represent sub-3rd, 3rd, 5th and 6th harmonics.

### ORGAN PEDALBOARD



An organ pedalboard may have as few as 13 or as many as 32 notes but the bottom one is always the C equivalent to the bottom C on a 61-note manual. If played with an 8ft pedal stop, this key will produce the same frequency (65.41) but it is more commonly used with a 16ft stop or "voice" producing 32.7Hz. Other footages bear the same relationship to the 16ft and 8ft voices as indicated for the manual.



16'	(sub-harmonic)	32.70	65.41	130.8	261.6	523.3	1047
8'	fundamental	65.41	130.8	261.6	523.3	1047	2093
5-1/3'	(3rd harm of 16')	98.00	196.0	392.0	784.0	1568	3136
4'	(2nd harmonic)	130.8	261.6	523.3	1047	2093	4186
2-2/3'	(3rd harmonic)	196.0	392.0	784.0	1568	3136	6272
2'	(4th harmonic)	261.6	523.3	1047	2093	4186	8372
1-3/5'	(5th harmonic)	329.6	659.3	1319	2637	5274	10548
1-1/3'	(6th harmonic)	392.0	784.0	1568	3136	6272	12544
1'	(8th harmonic)	523.3	1047	2093	4186	8372	16744

### THE TEMPERED MUSICAL SCALE

C	261.62556536Hz	G	391.99543600Hz
C-sharp	277.18263104Hz	G-sharp	415.30469759Hz
D	293.66476797Hz	A	440.00000000Hz
D-sharp	311.12698377Hz	A-sharp	466.16376151Hz
E	329.62755696Hz	B	493.88330123Hz
F	349.22823147Hz	C	523.25112057Hz
F-sharp	369.99442273Hz		



## CIRCUIT LAWS

### OHM'S LAW

The relationship between voltage, current and resistance in a circuit is defined by Ohm's law, which may be simply stated by the formula:

$$E = I \times R$$

where E is in volts, I is in amps and R is in ohms.

This can be turned around to look like:

$$I = \frac{E}{R} \quad R = \frac{E}{I}$$

### POWER IN A CIRCUIT

When a current passes through a component, energy is given off in the form of heat. Normally, we associate resistors with this action: that's part of their job. We often need to know how much power is being given off by a resistor - and we find this out by using the formula.

$$W = E \times I$$

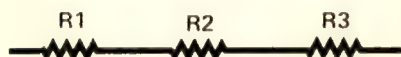
where W is in watts, E is in volts and I is in amps. This formula, too can be turned around if required:

$$E = \frac{W}{I} \quad I = \frac{W}{E}$$

### RESISTORS IN SERIES

Resistors in a series circuit are simply added together to find the total resistance. In other words, a 10 ohm, 150 ohm and 1000 ohm resistor connected in series would be the equivalent of a single 1,160 ohm resistor. The formula is:

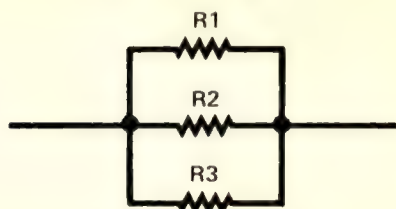
$$R_T = R_1 + R_2 + R_3 + \dots$$



### RESISTORS IN PARALLEL

Resistors in a parallel circuit are a little more difficult. The formula to use is:

$$R_T = \frac{1}{\frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} + \dots}$$



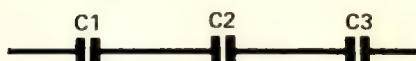
Two resistors in parallel

$$R_T = \frac{R_1 \times R_2}{R_1 + R_2}$$

### CAPACITORS IN SERIES

Capacitors in series, on the other hand, are similar to resistors in parallel: You add the reciprocals:

$$C_T = \frac{1}{\frac{1}{C_1} + \frac{1}{C_2} + \frac{1}{C_3} + \dots}$$

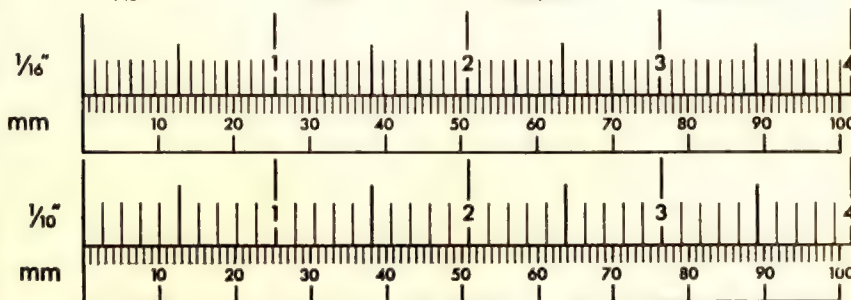


Two capacitors in series

$$C_T = \frac{C_1 \times C_2}{C_1 + C_2}$$

## METRIC UNITS AND CONVERSIONS

MULTIPLY BY	TO CONVERT		MULTIPLY BY
	← CONVERSELY	→ INTO	
2.296 x 10 <sup>-6</sup>	Acres	Square feet	4.356 x 10 <sup>4</sup>
2.471 x 10 <sup>-4</sup>	Acres	Square metres	4047
2.778 x 10 <sup>-4</sup>	Ampere-hours	Coulombs	3600
2.54 x 10 <sup>0</sup>	Angstrom units	Inches	3.937 x 10 <sup>-3</sup>
10 <sup>10</sup>	Angstrom units	Metres	10 <sup>-10</sup>
0.02950	Atmospheres	Feet of water	33.90
0.06804	Atmospheres	Pounds per sq. in.	1470
1.0133	Bars	Atmospheres	9.870 x 10 <sup>-7</sup>
6.8947 x 10 <sup>-2</sup>	Bars	Pounds per sq. in.	14.504
(°F - 32) x 5/9 = °C	Centigrade °	Fahrenheit	(°C x 9/5) + 32 = °F
°K - 273.1 = °C	Centigrade	Kelvin	°C + 273.1 = °K
3.531 x 10 <sup>-2</sup>	Cubic feet	Litres	28.32
6.102 x 10 <sup>-2</sup>	Cubic inches	Cubic centimetres	16.39
2.832 x 10 <sup>-2</sup>	Cubic metres	Cubic feet	35.31
0.16667	Fathoms	Feet	6
3.281	Feet	Metres	0.3048
6.481 x 10 <sup>-2</sup>	Grams	Grains	15.43
28.35	Grams	Ounces (avdp.)	3.527 x 10 <sup>-2</sup>
1.341	Horsepower	Kilowatts	0.746
0.3937	Inches	Centimetres	2.54
10 <sup>-3</sup>	Kilograms	Tonnes	10 <sup>3</sup>
0.4536	Kilograms	Pounds (avdp.)	2.205
3.408 x 10 <sup>-4</sup>	Kilometres	Feet	3281
9.4637 x 10 <sup>12</sup>	Kilometres	Light years	1.0567 x 10 <sup>-13</sup>
0.869	Knots	Miles per hour	1.1508
2.54 x 10 <sup>-2</sup>	Metres	Inches	39.37
0.6214	Miles (statute)	Kilometres	1.609
5.88 x 10 <sup>12</sup>	Miles (statute)	Light years	1.691 x 10 <sup>-13</sup>
1.1508	Miles (statute)	Miles (nautical)	0.869
10 <sup>-3</sup>	Millimetres	Microns	10 <sup>3</sup>
2.205 x 10 <sup>-3</sup>	Pounds	Grams	453.6
746	Watts	Horsepower	1.341 x 10 <sup>-3</sup>



In most electronics publications, metric multipliers are used to simplify and shorten component values, etc.

For example, capacitance is measured in Farads - but the Farad is a huge unit of measurement, much too large to be of any use in expressing capacitor values. So we use a suitable metric sub-multiple to save a lot of figures. Instead of saying, for example, 0.00000000001 Farads we say 1 pico Farad (1pF)

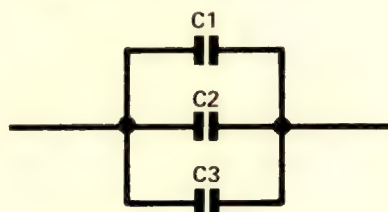
You will mainly use micro Farads (uF) and pico Farads (pF), however, some publications use the abbreviation nano Farad (nF) so you should get to know these eventually, too

Abbreviation	Means	Multiply unit by	Or
p	pico	.000000000001	10 <sup>-12</sup>
n	nano	.000000001	10 <sup>-9</sup>
u	micro	.000001	10 <sup>-6</sup>
m	milli	.001	10 <sup>-3</sup>
—	UNIT	1	10 <sup>0</sup>
k	kilo	1 000	10 <sup>3</sup>
M	mega	1 000 000	10 <sup>6</sup>
1000 pico units = 1 nano unit			
1000 micro units = 1 milli unit			
1000 units = 1 kilo unit			
1000 nano units = 1 micro unit			
1000 milli units = 1 unit			
1000 kilo units = 1 mega unit			

### CAPACITORS IN PARALLEL

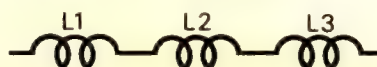
Capacitors behave exactly the opposite to resistors: when capacitors are in parallel, you add them:

$$C_T = C_1 + C_2 + C_3 + \dots$$



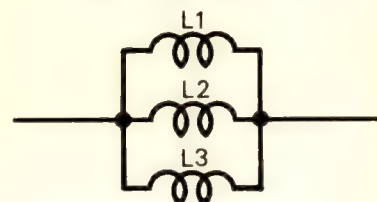
### INDUCTORS IN SERIES

$$L_T = L_1 + L_2 + L_3 + \dots$$



### INDUCTORS IN PARALLEL

$$L_T = \frac{1}{\frac{1}{L_1} + \frac{1}{L_2} + \frac{1}{L_3} + \dots}$$



Two inductors in parallel

$$L_T = \frac{L_1 \times L_2}{L_1 + L_2}$$

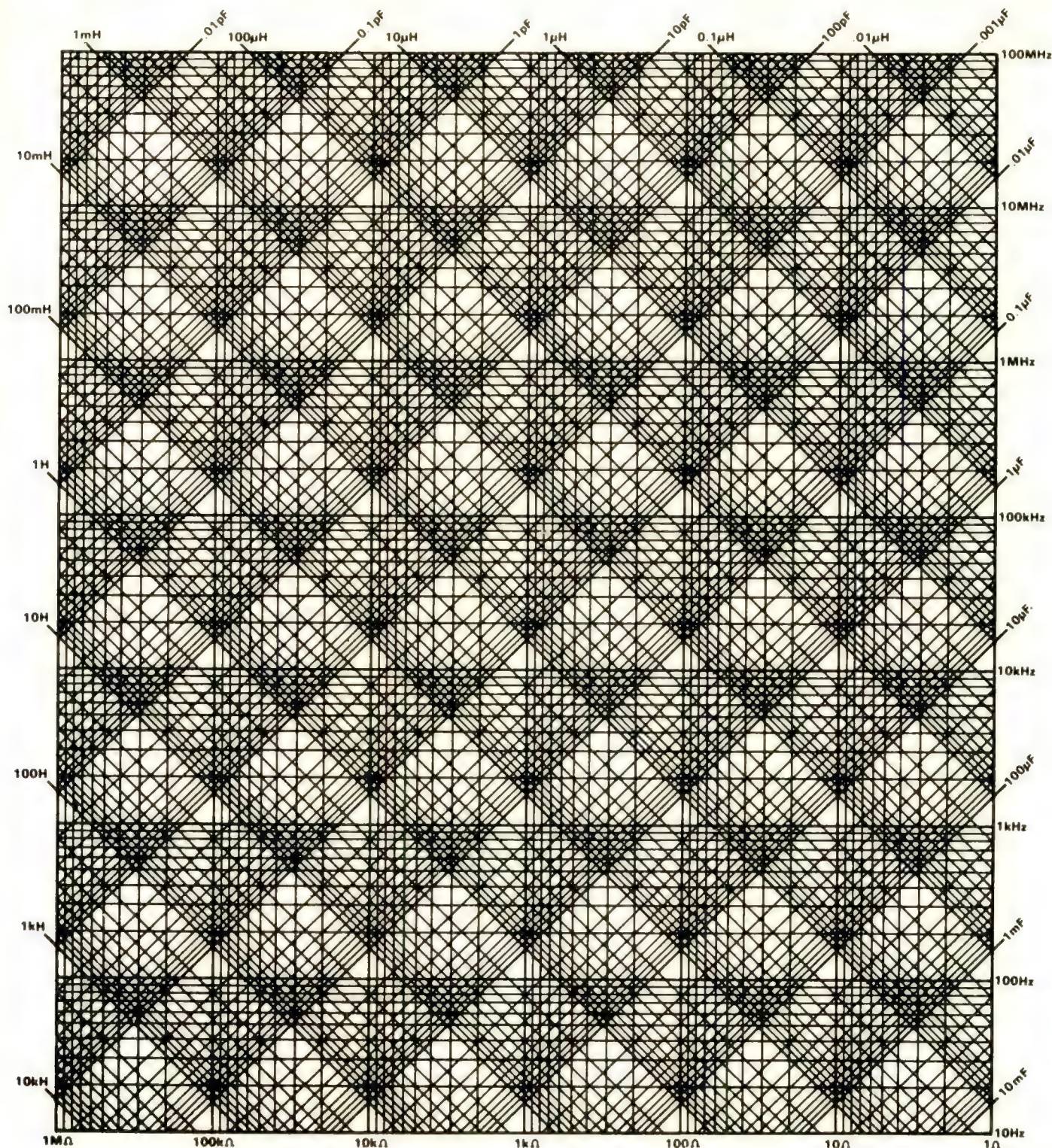


## REACTANCE-FREQUENCY CHART FOR CAPACITORS, INDUCTORS & TUNED CIRCUITS

To find the reactance of a capacitor at a given frequency, follow the 45° capacitance value line until it intersects the horizontal frequency line, then read downwards to the ohms scale at the bottom. The reactance of an inductor can be read in a similar manner.

The chart can also provide information about resonant circuits. For example, locate where particular values of L & C intersect and read off the resonant frequency. If frequency is known and either L or C, find the intersect and read off the remaining value. Again, by following along a particular frequency line, a variety of LC options for resonance can be determined.

To design simple 6dB/octave speaker crossover networks, follow the appropriate resistance line up to where it intersects the desired crossover frequency and read off the required values of L & C.





## WIRE GAUGES AND WINDING DATA

This table presents the nominal diameter and resistance (to four significant figures) of bare copper wire in various gauges. The gauges are the Brown and Sharpe gauge (B&S, also known as the American Wire Gauge AWG), the Standard Wire Gauge (SWG), and the metric gauge.

The data are given in both imperial and metric units. The diameter in the imperial units is expressed in mils, a mil being 1/1000in.

The resistance would be within plus or minus 2% at 20°C but varies with temperature. The resistance changes approximately 0.4% for each °C change in temperature, increased temperature giving increased resistance.

B&S SWG GAUGES	Metric mm	Diam. mils	Ohms per 1,000ft	Diam. mm	Ohms per km
—	4.500	177.2	0.3304	4.500	1.084
—	7	176.0	0.3348	4.470	1.098
6	—	162.0	0.3951	4.116	1.298
—	8	160.0	0.4051	4.064	1.329
—	*4.000	157.5	0.4182	4.000	1.372
7	—	144.3	0.4982	3.668	1.635
—	9	144.0	0.5001	3.658	1.641
—	3.550	139.7	0.5310	3.550	1.742
8	—	128.5	0.6282	3.265	2.061
—	10	128.0	0.6330	3.251	2.077
—	*3.149	124.0	0.6740	3.149	2.212
—	11	116.0	0.7707	2.946	2.529
9	—	114.4	0.7921	2.906	2.599
—	2.800	110.2	0.8534	2.800	2.800
—	12	104.0	0.9588	2.642	3.146
10	—	101.9	0.9989	2.589	3.277
—	*2.500	98.42	1.070	2.500	3.512
—	13	92.00	1.225	2.337	4.020
11	—	90.74	1.260	2.305	4.134
—	2.240	88.18	1.333	2.240	4.375
12	—	80.81	1.588	2.053	5.210
—	14	80.00	1.658	2.032	5.440
—	*2.000	78.74	1.673	2.000	5.488
—	15	72.00	2.001	1.829	6.663
13	—	71.96	2.003	1.828	6.572
—	1.000	70.87	2.065	1.800	6.775
14	—	64.08	2.525	1.628	8.284
—	16	64.00	2.532	1.626	8.307
—	*1.600	62.99	2.614	1.600	8.575
15	—	57.07	3.184	1.450	10.47
—	17	56.00	3.307	1.422	10.85
—	1.400	55.12	3.414	1.400	11.20
16	—	50.82	4.016	1.291	13.18
—	*1.250	49.21	4.282	1.250	14.05
—	18	48.00	4.501	1.219	14.77
17	—	45.26	5.064	1.150	16.61
—	1.120	44.09	5.333	1.120	17.50
18	—	40.30	6.385	1.024	20.95
—	19	40.00	6.482	1.016	21.27
—	*1.000	39.37	6.691	1.000	21.95
—	20	36.00	8.002	0.9144	26.25
19	—	35.89	8.051	0.9119	26.41
—	0.9000	35.51	8.222	0.9000	27.10
—	21	32.00	10.13	0.8128	33.23
20	—	31.96	10.15	0.8120	33.30
—	*0.8000	31.50	10.45	0.8000	34.30
21	—	28.46	12.80	0.7231	41.99
—	22	28.00	13.23	0.7112	43.40
—	0.7100	27.95	13.27	0.7100	43.55
22	—	25.35	16.14	0.6440	52.95
—	*0.6300	24.80	16.85	0.6300	55.31
—	23	24.00	18.00	0.6096	58.07
23	—	22.67	20.36	0.5734	66.80
—	0.5600	22.04	21.33	0.5600	70.00
—	24	22.00	21.43	0.5588	70.30
24	—	20.10	25.67	0.5107	84.22
—	25	20.00	25.93	0.5080	85.06
—	*0.5000	19.69	26.76	0.5000	87.81
—	26	18.00	32.01	0.4572	105.0
25	—	17.90	32.37	0.4548	106.2
—	0.4500	17.72	33.04	0.4500	108.4
—	27	16.40	38.56	0.4162	126.5
26	—	15.94	40.81	0.4050	133.9
—	*0.4000	15.75	41.82	0.4000	137.2
—	28	14.80	47.35	0.3759	155.3
27	—	14.20*	51.47	0.3608	168.9
—	0.3550	13.97	53.10	0.3550	174.2
—	29	13.60	56.07	0.3454	184.0
28	—	12.64	64.90	0.3211	212.9
—	*0.3150	12.40	67.45	0.3150	221.2
—	30	12.40	67.45	0.3150	221.2
—	31	11.60	77.07	0.2946	252.9
29	—	11.26	81.83	0.2861	268.5
—	0.2800	11.02	85.34	0.2800	280.0
—	32	10.80	88.91	0.2743	291.7
30	—	10.03	103.2	0.2548	338.6
—	33	10.00	103.7	0.2540	340.2
—	*0.2500	9.842	107.0	0.2500	351.2
—	34	9.200	122.5	0.2337	402.0
31	—	8.928	130.1	0.2268	426.8
—	0.2240	8.819	133.3	0.2240	437.5
—	35	8.400	147.0	0.2134	482.2
32	—	7.950	164.1	0.2020	538.4
—	*0.2000	7.874	167.3	0.2000	548.8
—	36	7.600	179.5	0.1930	589.1
—	0.1800	7.087	206.5	0.1800	677.5
33	—	7.080	206.9	0.1799	678.8
—	37	6.800	224.3	0.1727	735.8

B&S SWG GAUGES	Metric mm	Diam. mils	Ohms per 1,000ft	Diam. mm	Ohms per km
34	—	—	6.305	260.9	0.1602
—	—	*0.1600	6.299	261.4	0.1600
—	38	—	6.000	288.1	0.1524
35	—	—	5.615	329.0	0.1427
—	—	0.1400	5.612	314.4	0.1400
—	39	—	5.200	383.5	0.1321
36	—	—	5.000	414.8	0.1270
—	—	*0.1250	4.921	428.2	0.1250
—	40	—	4.800	450.1	0.1219
37	—	—	4.453	523.1	0.1131
—	—	0.1120	4.409	533.3	0.112
—	41	—	4.400	535.7	0.1118
—	42	—	4.000	648.2	0.1016
38	—	—	3.965	659.6	0.1007
—	—	*0.1000	3.937	669.1	0.1000
—	43	—	3.600	800.2	.09144
—	—	.0900	3.551	822.2	.0900
39	—	—	3.531	831.8	.08971
—	44	—	3.200	1013	.08128
—	—	*0.0800	3.150	1046	.0800
40	—	—	3.145	1049	.07990
41	—	—	2.801	1323	.07115
—	—	.0710	2.795	1327	.0710
42	—	—	2.494	1669	.06336
—	—	*0.0630	2.480	1685	.0630
—	46	—	2.400	1800	.06096
43	—	—	2.221	2104	.05643
—	—	.0560	2.204	2133	.0560
—	47	—	2.000	2593	.05080
44	—	—	1.978	2654	.05025
—	—	*0.0500	1.969	2676	.0500

\*First preference values

## WINDING DETAILS

B&S No.	Turns per inch Enamelled	SWG No.	Turns per inch Enamelled	Diam. mm.	Turns per cm Enamelled
8	7.65	10	7.63	4.500	2.158
9	8.58	11	8.33	4.000	2.423
10	9.61	12	9.26	3.550	2.720
11	10.7	13	10.42	3.150	3.060
12	12.0	14	11.90	2.800	3.440
13	13.5	15	13.25	2.500	3.840
14	15.1	16	14.81	2.240	4.280
15	16.9	17	16.95	2.000	4.780
16	18.9	18	19.72	1.800	5.290
17	21.2	19	23.47	1.600	5.940
18	23.7	20	25.97	1.400	6.760
19	26.5	21	29.15	1.250	7.540
20	29.5	22	33.33	1.120	8.390
21	33.1	23	38.91	1.000	9.360
22	37.0	24	42.37	0.900	10.360
23	41.4	25	46.51	0.800	11.610
24	46.5	26	51.55	0.710	13.030
25	52.0	27	56.50	0.630	14.620
26	58.4	28	62.50	0.560	16.360
27	65.3	29	67.57	0.500	18.240
28	73.5	30	74.63	0.450	20.200
29	81.9	31	79.37	0.400	22.620
30	92.5	32	85.47	0.355	25.300
31	103	33	91.74	0.315	28.400
32	114	34	100.0	0.280	31.700
33	129	35	109.9	0.250	35.200
34	144	36	120.5	0.224	39.000
35	161	37	135.1	0.200	43.500
36	181	38	151.5	0.180	47.800
37	204	39	175.4	0.160	53.500
38	227	40	188.7	0.140	60.200
39	256	41	208.3	0.125	67.100
40	285	42	227.3	0.112	74.600
(41)	327	43	256.4	0.100	82.600
(42)	378	44	285.7		
(43)	421	45	322.6		
(44)	471	46	377.4		
(45)	523	47	444.4		
(46)	581	48	—		

The accompanying table allows easy comparison of the different standards, permitting a near equivalent to be selected if coil winding data (for example) specifies a gauge which is not readily available. If 38 B&S were specified for a coil, it can be seen that either 42 SWG or 0.1 mm metric has approximately the same diameter and could therefore be substituted.

In the event that the precise gauge of an available wire is not known, and no micrometer is available, it can be determined quite easily with reasonable accuracy. Wind some of the wire on a small mandrel, such as a pencil, and note the number of turns per unit length. The gauge can now be determined from the tables.

## FREQUENCY - WAVELENGTH CONVERSION

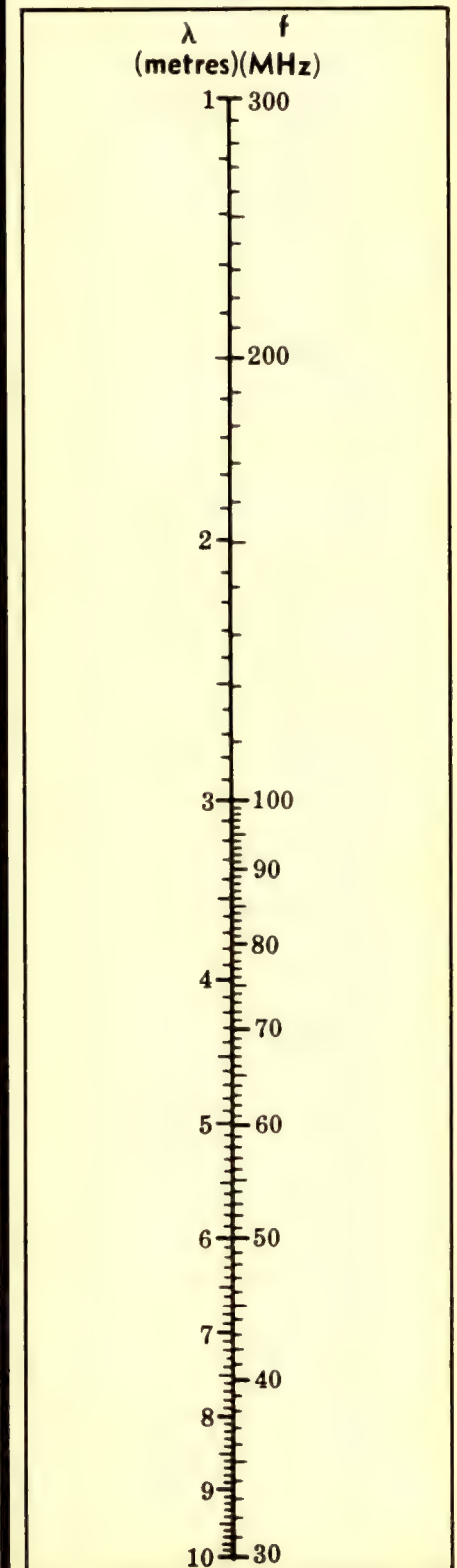
This chart gives the basic conversion from metres to MHz in the range 1-10m and 30-300MHz.

### FOR WAVELENGTHS

10m to 100m DIVIDE MHz by 10  
100m to 1,000m DIVIDE MHz by 100  
1,000m to 10km Answer is in kHz.

### FOR FREQUENCIES

30kHz to 300kHz MULTIPLY metres by 1,000  
300kHz to 3MHz MULTIPLY metres by 100  
3MHz to 30MHz MULTIPLY metres by 10  
300 MHz to 3,000 MHz DIVIDE metres by 10





## DATA SECTION

### SOME AUDIO TERMS EXPLAINED

The specification for the performance of an audio amplifier system will often include terms using decibels above or below (±) some standard, usually maximum power output at some stated amount of harmonic distortion. Using the chart it is possible to see what these figures mean in terms of actual power. Since negative values or losses are frequently involved the following table will prove a valuable addition to the chart

Loss -dB	Power Ratio (approx.)	V or I Ratio (approx.)
0	1.0	1.0
1	0.8	0.9
2	0.6	0.8
3	0.5	0.7
4	0.4	0.6
5	0.3	0.56
6	0.25	0.5
10	0.1	0.3
15	0.03	0.18
20	0.01	0.1
30	0.001	0.03
40	10 <sup>-4</sup>	0.01
50	10 <sup>-5</sup>	0.003

**Power Bandwidth:** Typically 30Hz to 20,000Hz, at which points the amplifier is only capable of delivering half its rated output without distortion, regardless of input level

**Frequency Response:** Typically stated as 20Hz to 20,000Hz ± 1dB which means a reduction to 0.8 (8/10ths) of maximum power output at these limits

**Signal to Noise Ratio:** Typically -80dB relative to maximum power. This gives a ratio of 100,000,000 to 1. If the maximum power output of the amplifier is 100 watts (100,000,000 uW) the noise level at maximum volume should not exceed one micro-watt!

**Tone controls or Filters:** These may have their performance specified by the altered response they provide at the top or bottom of the audio range, such as "from +15 to -15dB at 50Hz and +13 to -15dB at 10,000Hz", for variable tone controls

### METER SHUNTS & MULTIPLIERS

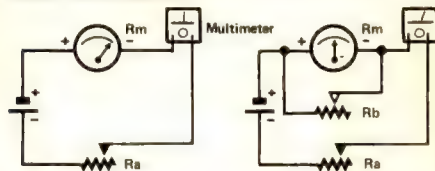
#### FORMULAS FOR USE WITH DC METER MOVEMENTS

The basic instrument for testing current and voltage is the moving coil meter. The movement can be either be a milliammeter or a microammeter. A resistor in series will convert it to a DC voltmeter or a resistor in parallel will convert it to a DC ammeter

First, the resistance of the meter movement has to be found

Connect a variable resistor (Ra) in series with the movement, a multimeter (set to measure current equal to or greater than the movement itself) and a battery as shown. Adjust Ra until full scale deflection is shown on the meter under test. Note the multimeter reading. Now connect a second resistor Rb as shown and adjust it till the reading on the test meter reads half scale. There may be a need to readjust Ra so that the multimeter again reads the first noted value. This will mean that Rb has to be reset to give the correct half scale reading. These procedures may have to be repeated a couple of times to obtain the correct levels.

After getting the correct result, carefully remove Rb from the circuit and measure its value. This measured resistance is equal to the resistance of the meter movement.

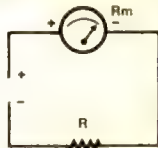


#### Voltage Multipliers

These ammeter movements can be made to measure voltage by simply adding a series resistance. The formula for calculating this value is as follows:

$$R = \frac{E_s}{I_s} - R_m$$

where,  
R is the multiplier resistance in ohms,  
Es is the full scale reading in volts,  
Is is the full scale reading in amperes,  
Rm is the meter resistance in ohms.

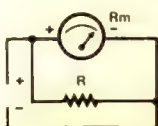


#### Ammeter Shunts

The value of the current reading can be increased by simply placing a shunt resistor across the movement. The formula for calculating this value is as follows:

$$R = \frac{R_m}{N - 1} = \frac{I_m R_m}{I_s}$$

where,  
R is the resistance in ohms,  
Rm is the meter resistance in ohms,  
N is the scale multiplication factor,  
Im is the meter current,  
Is is the shunt current.



### DECIBELS

Contrary to popular usage and belief the DECIBEL is not a unit of anything, as is the volt or ampere or ohm, but rather a ratio of voltages or currents or power levels in the electronics field. The human ear can detect sounds over a very wide range of power levels but its response is not linear. As the sound level increases the ear's apparent sensitivity decreases. A sound which is doubled in actual intensity does not seem to be twice as loud to the ear.

The ear in fact works on a logarithmic scale hence measurements on sound levels or on equipment that produces sound must be on the same logarithmic scale if they are to make sense

#### THE DECIBEL CHART

The chart is the one most suitable for measurements on audio amplifiers and associated equipment, with one scale showing the ratio of power or voltage or current plotted against the decibel scale (dB). If specific examples need to be worked out the following formula can be used:-

$$dB = 10 \log \frac{P_1}{P_2}$$

where P1 and P2 are the two power levels. If the output power is greater than the input power then the ratio, in dB, is positive, e.g. +6dB. If the output is less than the input the ratio is expressed as a negative value, e.g. -12dB. In either case P1 is the larger of the two values

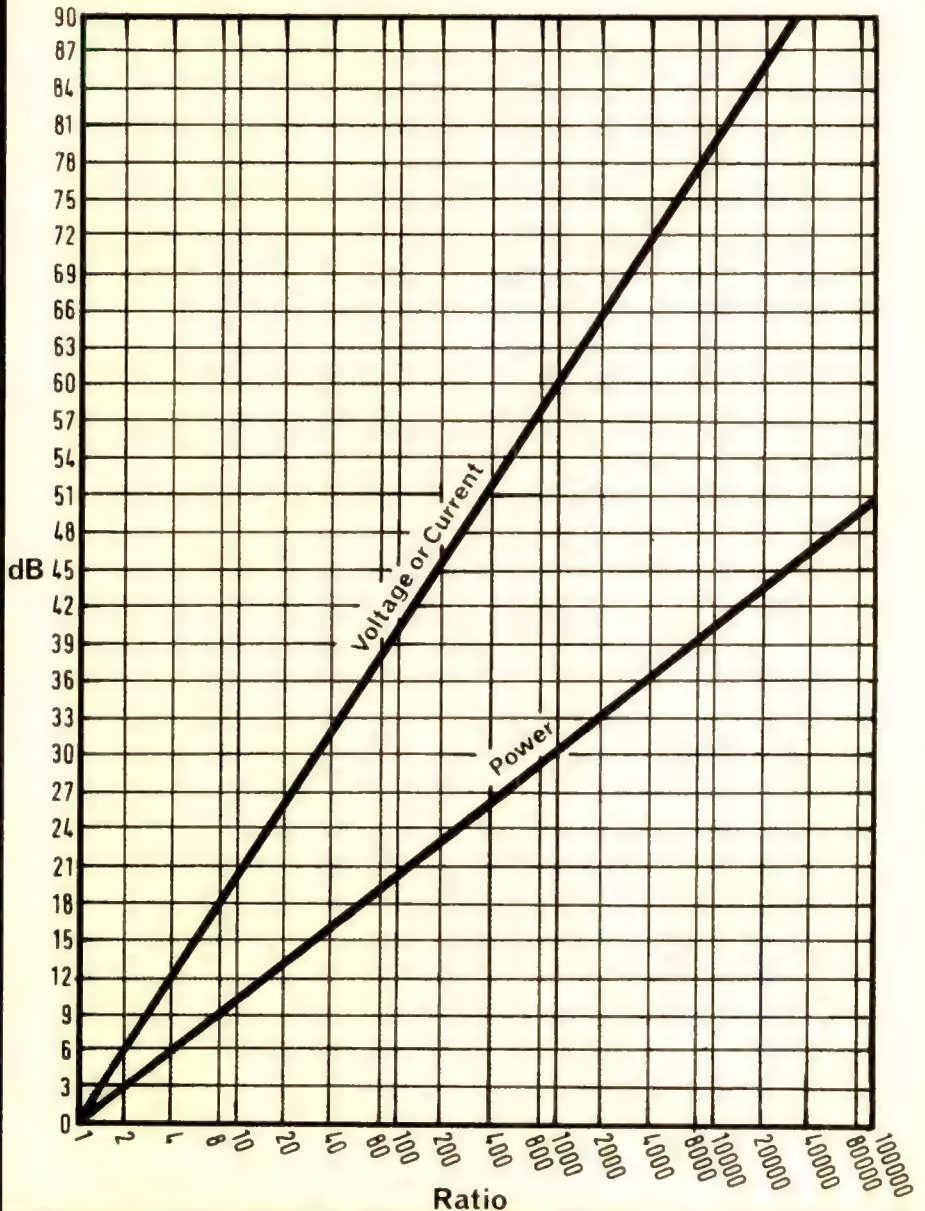
If the voltage or current is being considered the formula becomes

$$dB = 20 \log \frac{V_1}{V_2}$$

The formula assumes that the input and output impedances are the same. If they are not then due allowance must be made in the formula

The formula for taking into account differing input and output impedances is:-

$$dB = 20 \log \frac{V_1}{V_2} + 10 \log \frac{Z_1}{Z_2}$$



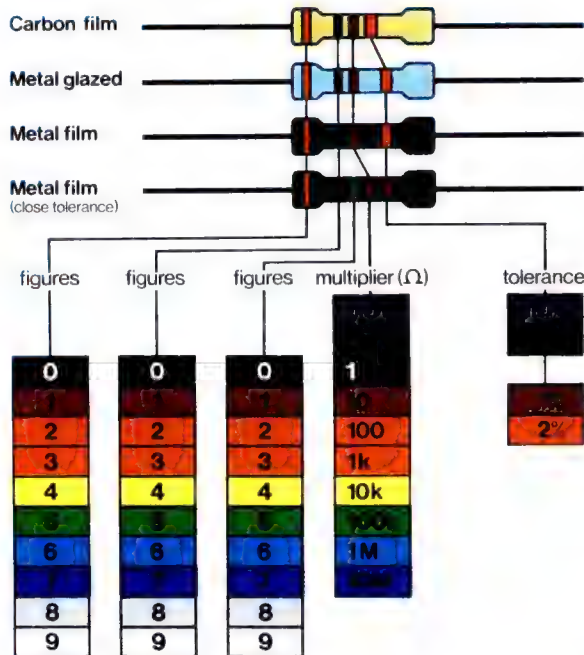
### AVERAGE, RMS, PEAK, AND PEAK-TO-PEAK VALUES FOR A SINE WAVE

Given Value	Multiplying Factor to Get			
	Average	RMS	Peak	Peak-to-Peak
Average	—	1.11	1.57	3.14
Rms	0.9	—	1.414	2.828
Peak	0.637	0.707	—	2.0
Peak-to-Peak	0.32	0.3535	0.5	—

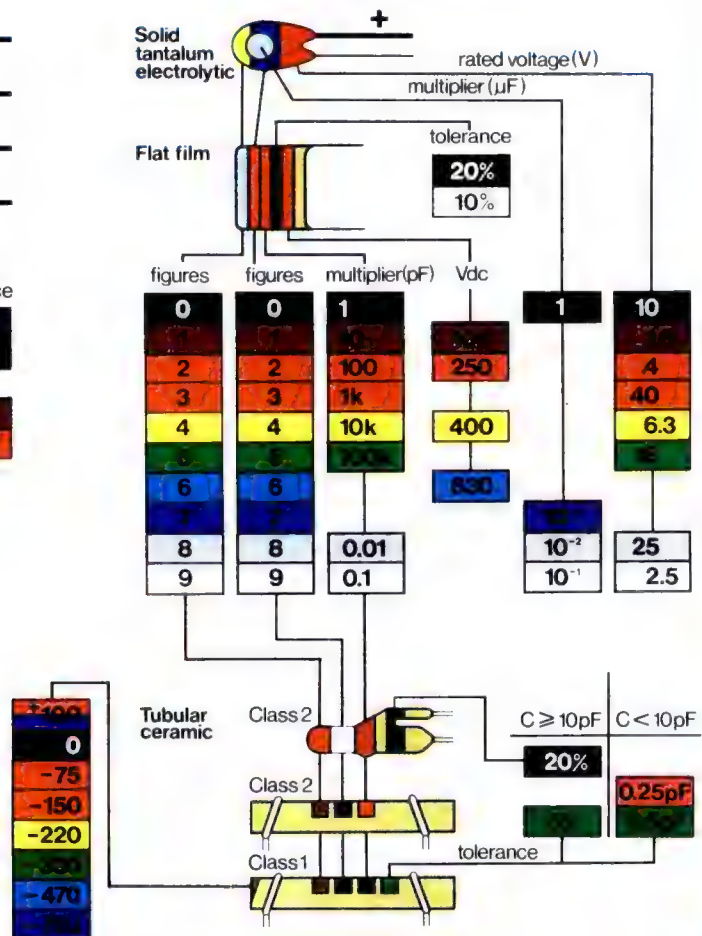


# Colour Codes

## Resistors



## Capacitors



**Scotchcal**  
PHOTOSENSITIVE PRODUCTS

## PROCESSING PROCEDURE

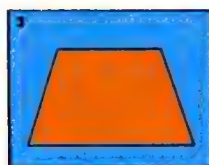
This procedure is suitable for use with the Dick Smith  
Scotchcal Black Aluminium Sheet Cat H-5694  
Scotchcal Red Aluminium Sheet Cat H-5692  
Scotchcal Plastic Exposure Film Cat H-5690



**Prepare to expose photosensitive material.**  
Negative or positive translucent or transparent artwork facing up. For 8007 reversing film, emulsion must be down.



**Expose**  
Photosensitive surface emulsion exposed to ultra-violet light.



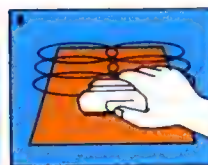
**Place exposed photosensitive material on a level surface. Work in safelight conditions.**



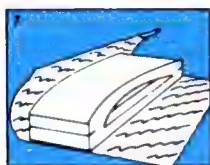
**Wrap some cloth or similar soft material around a block to make a developing pad.**



**Pour out a small amount of 8500 'SCOTCHCAL' developer onto the exposed material or film. Spread out evenly with a light sweeping motion.**



**Developing**  
By using a light 'figure 8' motion on the pad, the unwanted surface emulsion can be removed to a point where most has disappeared.



**Turn the cloth on the pad over so you have the fresh side out.**



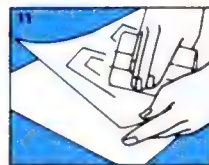
**To complete developing, use a light circular motion to remove all unwanted emulsion.**



**Drying**  
Wrap a fresh clean cloth around the developer pad and gently wipe any remaining developer from the surface. The job is now complete. Proceed to step 11 if the material does not need surface protection. This is the end of the process for exposure film.



**If your label or plate requires any surface protection, the surface can be sprayed with: Dick Smith Cat. N 1011 Clear Acrylic Spray or 'Scotchcal' 3900 or 3930 Sprays.**



**Apply the label or plate to a clean surface. Peel back the paper liner from the label. Carefully position the label over the surface that it is to be mounted. Press one edge in place and apply remainder with a soft cloth using firm overlapping strokes.**

**Do you need a darkroom or special equipment for exposure?**  
A darkroom is not necessary, all processing can be done in low level incandescent light, just keep clear of sunlight and fluorescent light. You do need an ultra-violet light source. A bank of 2 or 3 Philips Actinic Blue TLA20W/05 or Sylvania F20T12BL 20 Watt fluorescent tubes assembled into a suitable contact printer frame can be used. The exposure may take anything from 3 to 15 minutes with this setup. If you don't want to make up this equipment, sunlight will do perfectly, this may require anything from 30 seconds to 7 minutes.



# Dick Smith publications

## Book value that can't be found elsewhere

Overseas books are fine, but often don't have information relative to Australian conditions, laws, etc. Dick Smith has changed all that! He's gathered together some of the finest writers - experts in their field - to produce books suitable for the Australian market. And these are just the start. Dick will be bringing out more books in the future. Check out your nearest Dick Smith store for the latest titles - or watch our advertisements in the technical magazines.

### Dick Smith's Getting to know Personal Computers

Dick Smith's 'Getting to know Personal Computers' is the ideal introduction to the fascinating world of computers. It shows you the amazing things the computer can do for you with out getting bogged down with technical jargon. This handy book shows the easiest way to get started in computing - how to choose the hardware, etc. A must for the first-time user! Cat B-2350

Takes the mystery out of computers

VALUE FOR \$6<sup>95</sup>

What do your children know of computers?



### Dick Smith's Computers For Kids

Dick Smith's 'Computers for Kids' is a basic programming manual written just for kids.

If you're a parent, you're probably worried about the decreasing opportunities for kids - partly due to the increasing use of computers and computer controlled machinery. However, an enormous number of new jobs are being created right in the computer industry itself, for people with training and experience. Make sure your kids are prepared. This book will let them understand and give them some early experience with computers. Written by an experienced teacher in language kids understand - yet doesn't patronise. With its help they'll soon have a computer jumping through its hoops. Cat B-6190

Amazing Value \$4<sup>95</sup>



### Find out the incredible story behind Dick's Solo-Around-the-World Flight in ..... The Last Great Aviation Adventure

A special souvenir edition of Dick Smith's solo round-the-world helicopter flight, with pictures, maps, flight details, etc of this historic and record-breaking flight. At only \$1.50, it makes a great collector's item (very limited print run could make it valuable in years to come!). Cat B-9100

ONLY \$1<sup>50</sup>

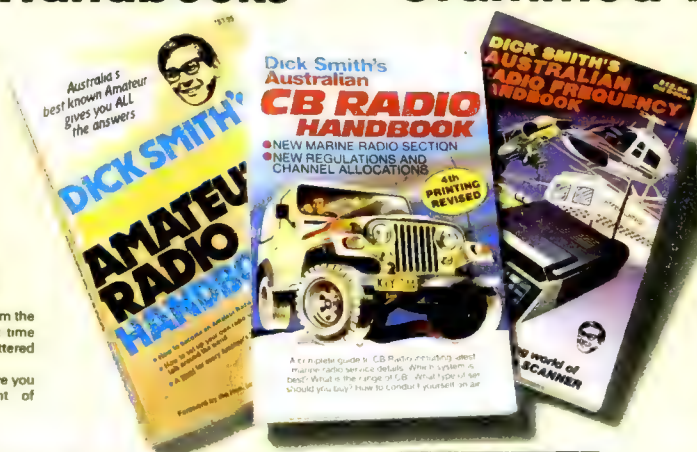
## Dick Smith Handbooks — Crammed with Information

### Dick Smith's Australian Amateur Radio Handbook

Beginners and Novices will benefit greatly from the wealth of information contained for the first time between two covers instead of being scattered around in impossible-to-find places. Even if you are an 'Old Ham' the book will give you ideas that will increase your enjoyment of amateur radio. Cat B-2320

\$5<sup>95</sup>

### Dick Smith's Australian CB Radio Handbook



Now a brand new edition - updated to include the latest CB regulations applicable to Australia (even 27MHz channel!). It's a complete guide to CB radio, including types of systems, range, how to set up, what to say...etc. A must for every Cber. Cat B-2325



\$4<sup>95</sup>



### Dick Smith's Australian Radio Frequency Handbook

Not just the HOW, but the WHEN, WHERE AND WHY of the world's latest electronic hobby craze - Scanning! The first time such a book has been attempted in Australia! Not only contains very detailed information on how to use scanners to listen in to emergency services, shipping, amateurs, etc etc - it also contains a comprehensive directory listing the frequencies of hundreds of individual users! New up-dated edition with a huge number of directory increases over last edition. Cat B-9600

\$12<sup>95</sup>



page 95



## ASCII CODES

DEC.	HEX.	CHAR.	DEC.	HEX.	CHAR.	DEC.	HEX.	CHAR.
000	00	NUL	044	2C	.	087	57	W
001	01	SOH	045	2D	,	088	58	X
002	02	STX	046	2E	!	089	59	Y
003	03	ETX	047	2F	/	090	5A	Z
004	04	EOT	048	30	0	091	5B	[
005	05	ENQ	049	31	1	092	5C	\
006	06	ACK	050	32	2	093	5D	]
007	07	BEL	051	33	3	094	5E	^
008	08	BS	052	34	4	095	5F	_
009	09	HT	053	35	5	096	60	`
010	0A	LF	054	36	6	097	61	a
011	0B	VT	055	37	7	098	62	b
012	0C	FF	056	38	8	099	63	c
013	0D	CR	057	39	9	100	64	d
014	0E	SI	058	3A	:	101	65	e
016	10	DLE	059	3B	;	102	66	f
017	11	DC1	060	3C	<	103	67	g
018	12	DC2	061	3D	=	104	68	h
019	13	DC3	062	3E	>	105	69	i
020	14	DC4	063	3F	@	106	6A	j
021	15	NAK	064	40	A	107	6B	k
022	16	SYN	065	41	B	108	6C	l
023	17	ETB	066	42	C	109	6D	m
024	18	CAN	067	43	D	110	6E	n
025	19	EM	068	44	E	111	6F	o
026	1A	SUB	069	45	F	112	70	p
027	1B	ESC	070	46	G	113	71	q
028	1C	FS	071	47	H	114	72	r
029	1D	GS	072	48	I	115	73	s
030	1E	RS	073	49	J	116	74	t
031	1F	US	074	4A	K	117	75	u
032	20	SPACE	075	4B	L	118	76	v
033	21	!	076	4C	M	119	77	w
034	22	"	077	4D	N	120	78	x
035	23	#	078	4E	O	121	79	y
036	24	\$	079	4F	P	122	7A	z
037	25	%	080	50	Q	123	7B	{
038	26	&	081	51	R	124	7C	
039	27	'	082	52	S	125	7D	}
040	28	(	083	53	T	126	7E	~
041	29	)	084	54	U	127	7F	DELETE (Rubout)
042	2A	*	085	55	V			
043	2B	+	086	56	W			

## STANDARD ASCII ABBREVIATIONS

ACK = Acknowledge  
 BELL = Bell  
 BS = Backspace  
 CAN = Cancel  
 CR = Carriage Return  
 DC1 = Direct Control 1  
 DC2 = Direct Control 2  
 DC3 = Direct Control 3  
 DC4 = Direct Control 4  
 DLE = Data Link Escape  
 EM = End of Medium  
 ENQ = Enquiry  
 EOT = End of transmission  
 ESC = Escape  
 ETB = End Transmission Block  
 ETX = End Text  
 FF = Form Feed  
 FS = Form Separator  
 GS = Group Separator  
 HT = Horizontal Tab  
 LF = Line Feed  
 NAK = Negative Acknowledge  
 NUL = Null  
 RS = Record Separator  
 SI = Shift In  
 SO = Shift Out  
 SOH = Start of Heading  
 STX = Start Text  
 SUB = Substitute  
 SYN = Synchronous Idle  
 US = Unit Separator  
 VT = Vertical Tab

## THE RS-232C INTERFACE

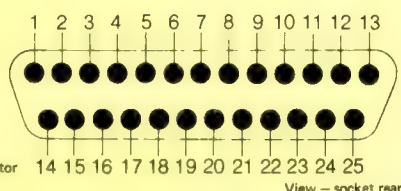
## The basic RS-232C electrical specifications

Communication rate  
 Driver output voltage levels, maximum no load.  
 Driver output voltage ranges for loads between 3k and 7k ohms.  
 Driver output current, short circuit.  
 Driver output impedance with power off.  
 Maximum driver output slew rate.  
 Receiver input resistance.  
 Effective receiver input capacitance.  
 Maximum receiver input voltage range.

0-20,000 bits per second  
 -25V logic 1, +25V logic 0  
 logic 1: -15V (7k) and -5V (3k)  
 logic 0: +15V (7k) and +5V (3k)  
 500mA maximum  
 300 ohms minimum  
 30 volts per microsecond  
 7k ohms maximum, 3k ohms minimum  
 2500pF maximum  
 -25V to +25V

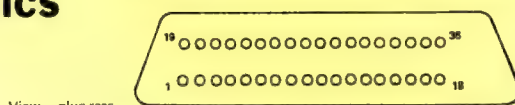
## RS232C CABLE PLUG CONNECTIONS

Pin No	Signal
1.	Protective Ground
2.	Transmit Data
3.	Received Data
4.	Request to Send
5.	Clear to Send
6.	Data Set Ready
7.	Signal Ground
8.	Received Line Signal Detector
20.	Data Terminal Ready



View - socket rear

## STANDARD CENTRONICS PRINTER PLUG CONNECTIONS



View - plug rear

Pin No	Signal	Pin No	Signal
19.	Signal Ground	7.	Data Bit 5
2.	Data Bit 0	8.	Data Bit 6
3.	Data Bit 1	1.	Data Strobe
4.	Data Bit 2	10.	Data Acknowledge
5.	Data Bit 3	11.	Input Busy Ready
6.	Data Bit 4		

## HEXADECIMAL CONSTANTS

## HEX-TO-DECIMAL CONVERSION

For each hexadecimal digit, go down the hex code column at the left until you find the right digit. Then move across to the right column. When all four digits have been converted into their decimal equivalents I, II, III, IV, add these all together to get the final answer, i.e.

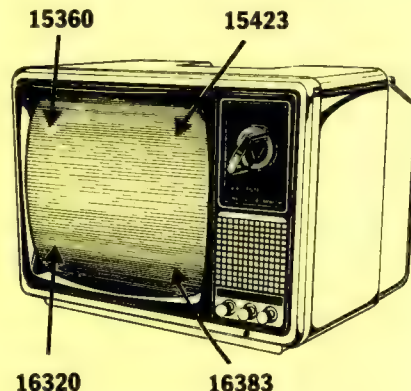
$$\text{DECIMAL VALUE} = \text{IV} + \text{III} + \text{II} + \text{I}$$

## HEX CODE Most Significant Bytes Least Significant Bytes

	IV	III	II	I
0	0	0	0	0
1	4096	256	16	1
2	8192	512	32	2
3	12288	768	48	3
4	16384	1024	64	4
5	20480	1280	80	5
6	24576	1536	96	6
7	28672	1792	112	7
8	32768	2048	128	8
9	36864	2304	144	9
A	40960	2560	160	10
B	45056	2816	176	11
C	49152	3072	192	12
D	53344	3328	208	13
E	57344	3584	224	14
F	61440	3840	240	15

ONE BYTE POSITIVE NUMBERS	ONE BYTE NEGATIVE NUMBERS
0 00	40 28
1 01	41 29
2 02	42 2A
3 03	43 2B
4 04	44 2C
5 05	45 2D
6 06	46 2E
7 07	47 2F
8 08	48 30
9 09	49 31
10 0A	50 32
11 0B	51 33
12 0C	52 34
13 0D	53 35
14 0E	54 36
15 0F	55 37
16 10	56 38
17 11	57 39
18 12	58 3A
19 13	59 3B
20 14	60 3C
21 15	61 3D
22 16	62 3E
23 17	63 3F
24 18	64 40
25 19	65 41
26 1A	66 42
27 1B	67 43
28 1C	68 44
29 1D	69 45
30 1E	70 46
31 1F	71 47
32 20	72 48
33 21	73 49
34 22	74 4A
35 23	75 4B
36 24	76 4C
37 25	77 4D
38 26	78 4E
39 27	79 4F
40 28	80 50
41 29	81 51
42 2A	82 52
43 2B	83 53
44 2C	84 54
45 2D	85 55
46 2E	86 56
47 2F	87 57
48 30	88 58
49 31	89 59
50 32	90 5A
51 33	91 5B
52 34	92 5C
53 35	93 5D
54 36	94 5E
55 37	95 5F
56 38	96 60
57 39	97 61
58 3A	98 62
59 3B	99 63
60 3C	100 64
61 3D	101 65
62 3E	102 66
63 3F	103 67
64 40	104 68
65 41	105 69
66 42	106 6A
67 43	107 6B
68 44	108 6C
69 45	109 6D
70 46	110 6E
71 47	111 6F
72 48	112 70
73 49	113 71
74 4A	114 72
75 4B	115 73
76 4C	116 74
77 4D	117 75
78 4E	118 76
79 4F	119 77
80 50	120 78
81 51	121 79
82 52	122 7A
83 53	123 7B
84 54	124 7C
85 55	125 7D
86 56	126 7E
87 57	127 7F
88 58	128 80
89 59	129 81
90 5A	130 82
91 5B	131 83
92 5C	132 84
93 5D	133 85
94 5E	134 86
95 5F	135 87
96 60	136 88
97 61	137 89
98 62	138 8A
99 63	139 8B
100 64	140 8C
101 65	141 8D
102 66	142 8E
103 67	143 8F
104 68	144 90
105 69	145 91
106 6A	146 92
107 6B	147 93
108 6C	148 94
109 6D	149 95
110 6E	150 96
111 6F	151 97
112 70	152 98
113 71	153 99
114 72	154 9A
115 73	155 9B
116 74	156 9C
117 75	157 9D
118 76	158 9E
119 77	159 9F
120 78	160 90
121 79	161 91
122 7A	162 92
123 7B	163 93
124 7C	164 94
125 7D	165 95
126 7E	166 96
127 7F	167 97
128 80	168 98
129 81	169 99
130 82	170 9A
131 83	171 9B
132 84	172 9C
133 85	173 9D
134 86	174 9E
135 87	175 9F
136 88	176 90
137 89	177 91
138 8A	178 92
139 8B	179 93
140 8C	180 94
141 8D	181 95
142 8E	182 96
143 8F	183 97
144 90	184 98
145 91	185 99
146 92	186 9A
147 93	187 9B
148 94	188 9C
149 95	189 9D
150 96	190 9E
151 97	191 9F
152 98	192 90
153 99	193 91
154 9A	194 92
155 9B	195 93
156 9C	196 94
157 9D	197 95
158 9E	198 96
159 9F	199 97
160 90	200 98
161 91	201 99
162 92	202 9A
163 93	203 9B
164 94	204 9C
165 95	205 9D
166 96	206 9E
167 97	207 9F
168 98	208 90
169 99	209 91
170 9A	210 92
171 9B	211 93
172 9C	212 94
173 9D	213 95
174 9E	214 96
175 9F	215 97
176 90	216 98
177 91	217 99
178 92	218 9A
179 93	219 9B
180 94	220 9C
181 95	221 9D
182 96	222 9E
183 97	223 9F
184 98	224 90
185 99	225 91
186 9A	226 92
187 9B	227 93
188 9C	228 94
189 9D	229 95
190 9E	230 96
191 9F	231 97
192 90	232 98
193 91	233 99
194 92	234 9A
195 93	235 9B
196 94	236 9C
197 95	237 9D
198 96	238 9E
199 97	239 9F
200 98	240 90
201 99	241 91
202 9A	242 92
203 9B	243 93
204 9C	244 94
205 9D	245 95
206 9E	246 96
207 9F	247 97
208 90	248 98
209 91	249 99
210 92	250 9A
211 93	251 9B
212 94	252 9C
213 95	253 9D
214 96	254 9E
215 97	255 9F

## DECIMAL POKE ADDRESS FOR DISPLAY CORNERS



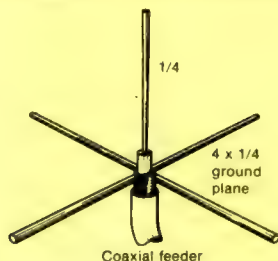


## ANTENNA DATA

### BASICS

The basic horizontal half wave aerial ( $\frac{1}{2}\lambda$ ). In practice, the physical length required for resonance is reduced by a factor of 0.95 ( $0.95 \times \frac{1}{2}\lambda$ ) due to the effect of insulators and nearby objects. A simple formula for the practical half wave aerial is  $143/F$  (MHz) metres. At resonance the induced voltage  $V$  will be maximum at the ends of the aerial (high impedance) while the current  $I$  will be maximum at the centre.

The basic Marconi aerial is a quarterwave vertical with the lower end close to the ground, and it is used mainly on the lower frequencies. If this aerial is erected over a perfectly conducting ground then an image of the aerial is formed, which simulates a half-wave aerial. In practice the 'perfect' earth is formed from a number of long wires (radials) laid on or just under the surface of the earth.

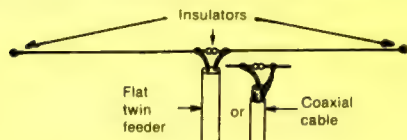


It is not necessary for the aerial wire to be physically the correct length for a particular frequency or wavelength. It can be made shorter or longer electrically to achieve the same state of resonance by using an aerial tuning unit (a.t.u.).

At higher frequencies, such an aerial is commonly mounted well above earth, and relies upon  $\lambda/4$  radials entirely for its reflecting "earth plane". Such an aerial is known as a ground-plane.

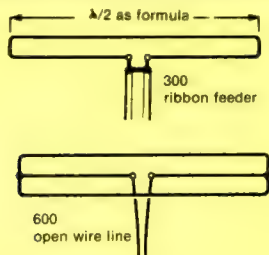
### HALF WAVE DIPOLE

As the impedance at the centre of a half-wave aerial is approximately 70 ohms, flat twin or coaxial feeders will provide a good impedance match to the aerial ensuring maximum signal transference. The aerial, length calculated from the formula given, is cut at the centre and an insulator inserted, the wires of the feeder being connected either side of the insulator.



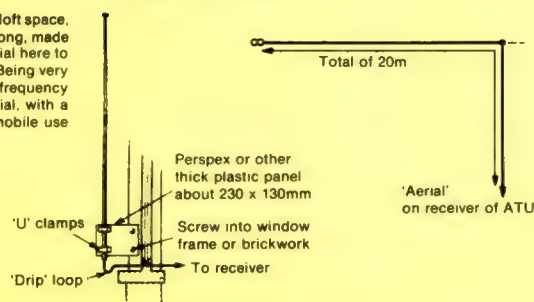
### FOLDED DIPOLE

The folded dipole will transform the input impedance by a factor of  $2^2$  or  $4 \times 70 = 280$  ohms so that it can be fed with a flat ribbon feeder of 300 ohms impedance, provided the wires forming the folded dipole are the same diameter. If a three-fold dipole is used, the input impedance will be  $70 \times 3^2 = 630$  ohms which will provide a good match to an open line feeder.



### RODS AND WHIPS

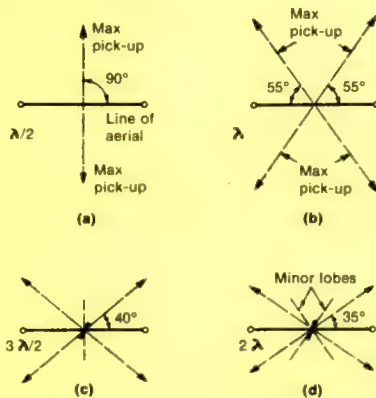
For the unit dweller, often without access to a roof or loft space, the only answer may be a vertical rod aerial 3 or 4m long, made from aluminium or copper tubing. An a.t.u. is essential here to bring the aerial to resonance on the various bands. Being very short this aerial will perform better on the higher frequency bands such as 10 and 15m. A commercial whip aerial, with a base-mounting insulator, of the type intended for mobile use can also be useful in this situation.



### DIRECTIVITY

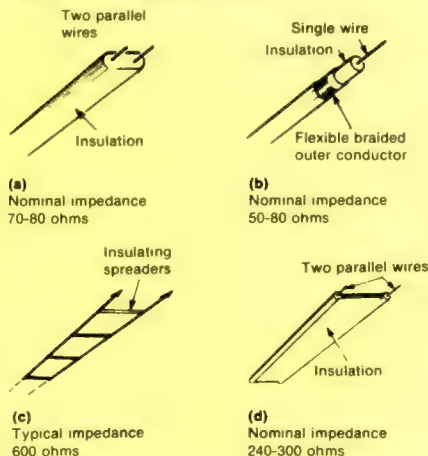
Signal pick-up of a half-wave aerial is maximum at right angles to the line of the wire (a). If the wire is one wavelength long maximum pick-up is from four directions (b). By choosing the right length of aerial and adjusting its orientation the maximum pick-up lobes can be made to cover all the land areas of the world.

Longer aerials result in the appearance of minor lobes (c) and (d) which reduce directivity and improve all round coverage. With an aerial many wavelengths long maximum reception is along the line of the wire.



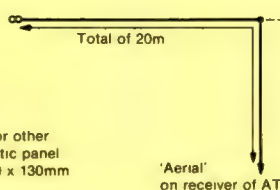
### FEEDERS

Since the aerial should be located in the clear and generally as high as possible to produce maximum signal strength it is necessary to use a feeder to connect the aerial to the receiver. Low impedance feeders may be flat twin (a), coaxial (b) or flat ribbon (d). High impedance feeders consist of two wires spaced apart by insulators every foot or so (c).



### LONG WIRE

A long length of copper wire, with one end connected to the receiver, is probably the most commonly used aerial. For best results it should be erected out of doors. The inverted "L" aerial is a good all-round performer especially if the vertical section can be 7m or more long. If the overall length is around 20m it will function well on the amateur bands without an aerial tuning unit but an a.t.u. will make it even better. The combination of horizontal and vertical polarisation will help with DX signals where the received signal's polarisation can vary considerably from minute to minute.

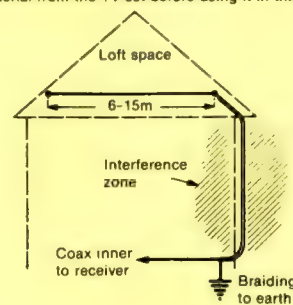


### INDOOR

A long wire aerial can be erected in restricted loft spaces and inside roofs even if it means draping it round the rafters! If electrical noise is a problem then the lower part of the aerial can be a length of coaxial cable with the outer screen connected to the receiver chassis or earth.

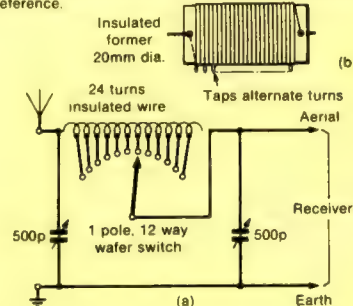
A similar aerial can be strung around a room, and even quite a small room will enable a 12 metre length to be used.

One convenient form of aerial can be obtained by using the coaxial cable of a TV aerial, the outer braiding being connected to the aerial socket of the receiver. Important! — disconnect the TV aerial from the TV set before using it in this form.



### AERIAL TUNING UNIT

For best results an end-fed wire aerial or rod aerial should be matched to the receiver input circuit with an Aerial Tuning Unit (a). The inductor (b) is wound making a loop every other turn, the loops then being soldered to the switch tags. Fit each tuning capacitor with a calibrated knob or dial and number the switch positions. Adjust the capacitors and switch position for maximum signal strength noting that the three adjustments are very much interdependent. Log dial and switch readings for future reference.



### YAGI

The most common version of the parasitic aerial array, the Yagi, will be familiar to all in its application to v.h.f. and u.h.f. TV and to v.h.f. f.m. sound reception. Its basic form, the "H", is formed by adding a single rod to a half-wave dipole, spaced some small fraction of a wavelength from it. By making the rod slightly longer than the dipole, it acts as a reflector, modifying the response pattern to a cardioid (heartshape) pattern. In practice this is not a perfect cardioid, and there will be an unwanted rear lobe.

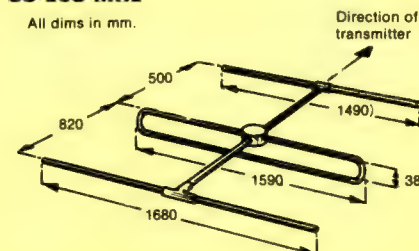
Adding a second rod, slightly shorter than the dipole, on the opposite side to the reflector, will reinforce and narrow the main lobe of the response pattern. A 3-element Yagi suitable for v.h.f. f.m. sound reception is shown. The frequency of maximum response is 95MHz.

Further directors may be added in front of the first, each slightly improving the gain of the aerial array, up to a limit of about 36 elements, after which no significant increase is obtained.

Adding parasitic elements reduces the impedance of the dipole, as seen by the feeder, and a folded dipole is frequently used, to help to compensate for this.

### V.H.F. YAGI FOR F.M. RADIO 88-108 MHz

All dims in mm.

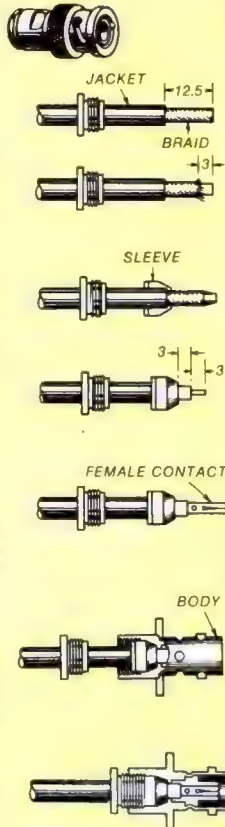




## WIRING PLUGS

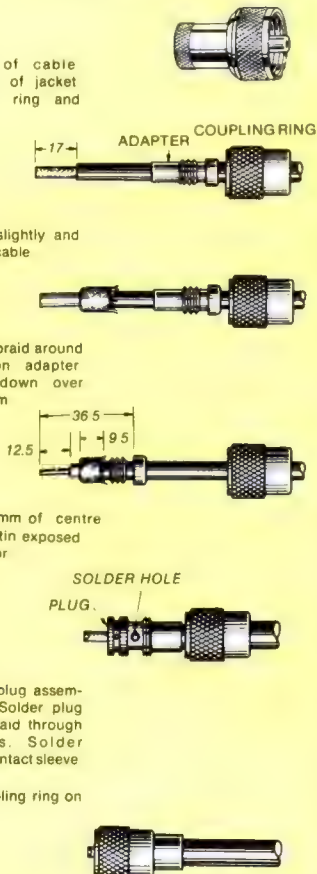
### BNC

1. Cut end of cable even
2. Remove 12.5mm of jacket
3. Push braid back and remove 3mm of insulation and conductor
4. Taper braid
5. Slide sleeve over tapered braid. Fit inner shoulder or sleeve squarely against end of jacket
6. With sleeve in place, comb out braid, fold back smooth as shown, and trim 2.5mm
7. Bare centre conductor 3mm
8. Tin centre conductor of cable. Slip female contact in place and solder. Remove excess solder. Be sure cable dielectric is not heated excessively and swollen so as to prevent dielectric entering body.
9. Push into body as far as it will go. Slide nut into body and screw into place, with wrench, until it is moderately tight. Hold cable and shell rigidly and rotate nut.
10. This assembly procedure applies to both BNC jacks and plugs.



### PL259 WITH ADAPTORS

1. Cut end of cable. Remove 17mm of jacket. Slide coupling ring and adaptor on.
2. Fan braid slightly and fold back over cable.
3. Compress braid around cable. Position adaptor. Press braid down over adaptor and trim.
4. Bare 12.5mm of centre conductor. Pre-tin exposed centre conductor.
5. Screw the plug assembly on cable. Solder plug assembly to braid through solder holes. Solder conductor to contact sleeve.
6. Screw coupling ring on assembly.



## THE PHONETIC ALPHABET

When it is necessary to spell out words, as for example when communication is difficult, or speaking to a station unable to converse fluently in English, the following table may be used

When it is necessary to spell out figures or marks, the following table should be used

Figure or mark to be transmitted	Code word to be used	Spoken as
0	NADAZERO	NAH-DAH-ZAY-ROH
1	UNAONE	OO-NAH-WUN
2	BISSOTWO	BEES-SOH-TOO
3	TERRATHREE	TAY-RAH-TREE
4	KARTEFOUR	KAR-TAY-FOWER
5	PANTAFIVE	PAN-TAH-FIVE
6	SOXISIX	SOK-SEE-SIX
7	SETTESEVEN	SAY-TAY-SEVEN
8	OKTOEIGHT	OK-TOH-AIT
9	NOVENINE	NO-VAY-NINER
Decimal point	DECIMAL	DAY-SEE-MAL
Full stop	STOP	STOP

Letter	Word	Spoken as
A	ALFA	AL FAH
B	BRAVO	BRAH VOH
C	CHARLIE	CHAR LEE
D	DELTA	DELL TAH
E	ECHO	ECK OH
F	FOXTROT	FOKS TROT
G	GOLF	GOLF
H	HOTEL	HOH TELL
I	INDIA	IN DEE AH
J	JULIET	JEW LEE ETT
K	KILO	KEY LOH
L	LIMA	LEE MAH
M	MIKE	MIKE
N	NOVEMBER	NO VEM BER
O	OSCAR	OSS CAR
P	PAPA	PAH PAH
Q	QUEBEC	KEH BECK
R	ROMEO	ROW ME OH
S	SIERRA	SEE AIR RAH
T	TANGO	TAN GO
U	UNIFORM	YOU NEE FORM
V	VICTOR	VIK TOR
W	WHISKY	WISS KEY
X	X-RAY	ECKS RAY
Y	YANKEE	YANG KEY
Z	ZULU	ZOO LOO

## THE "Q" CODE

<b>QRA</b>	What is your station?	<b>QRV</b>	Are you ready?
<b>QRB</b>	How far away are you?	<b>QRX</b>	Wait briefly (e.g. QRX-1, wait 1 minute)
<b>QRC</b>	What channel am I on?	<b>QRZ</b>	Who is the station that's calling me.
<b>QRH</b>	Does my frequency vary?	<b>QSA</b>	What is my strength?
<b>QRK</b>	What is my readability?	<b>QSB</b>	Am I fading?
<b>QRM</b>	Are you being interfered with (by other stations - man made interference)?	<b>QSL</b>	Can you acknowledge receipt (QSL card - card for this purpose)
<b>QRN</b>	Are you troubled by noise or static (natural interference - lightning etc)?	<b>QSN</b>	Did you hear me on —?
<b>QRP</b>	Can you reduce power?	<b>QSO</b>	Two-way communication between stations
<b>QRT</b>	Shall I stop transmitting?	<b>QSY</b>	Will you change to another channel?
<b>QRY</b>	I am on standby unless messages are specifically directed to me	<b>QTH</b>	What is your location now?
		<b>QTR</b>	What is the correct time?

## MORSE CODE

Morse is an 'Aural' language (that is, received by the ears and not by the eyes). It should never be represented in dot and dash form

Instead, try to think of Morse as 'dits' and 'dahs'. A 'dit' is a short, sharp note, made by quickly pressing the key and releasing it. A 'dah' should be three times longer than a dit — you hold the key down for three times as long

The 'International' Morse Code we know today is an adaptation of Morse's original code, called the 'Continental' Code. It differs in only a few respects: if one code is known thoroughly, it is usually possible to reasonably understand the other

1. di dah dah dah dah
2. di di dah dah dah
3. di di di dah dah
4. di di di di dah
5. di di di di di
6. dah di di di di
7. dah dah di di di
8. dah dah dah di di
9. dah dah dah dah di
10. dah dah dah dah dah

<b>A</b>	di dah	<b>P</b>	di dah dah di
<b>B</b>	dah di di di	<b>Q</b>	dah dah di dah
<b>C</b>	dah di dah di	<b>R</b>	di dah di
<b>D</b>	dah di di	<b>S</b>	di di di
<b>E</b>	di	<b>T</b>	dah
<b>F</b>	di di dah di	<b>U</b>	di di dah
<b>G</b>	dah dah di	<b>V</b>	di di di dah
<b>H</b>	di di di di	<b>W</b>	di dah dah
<b>I</b>	di di	<b>X</b>	dah di di dah
<b>J</b>	di dah dah dah	<b>Y</b>	dah di dah dah
<b>K</b>	dah di dah	<b>Z</b>	dah dah di di
<b>L</b>	di dah di di		di dah dah dah di dah
<b>M</b>	dah dah		di di dah dah di di
<b>N</b>	dah di		Error di di di di di di di di
<b>O</b>	dah dah dah		

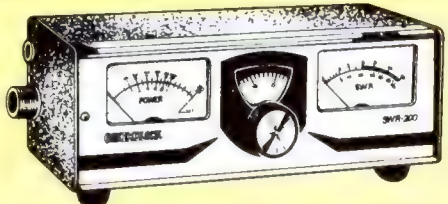
## ANTENNA MATCHING & SWR

With any transmitter it is important to match it to the antenna. Otherwise some of the power will not be effectively transmitted but instead reflected back into the transmitter. The SWR meter provides a means of measuring the 'match'

### MEASURING THE SWR

Follow the step-by-step procedure here and you will be surprised how easy it is!

- (1) If you are using a single-meter instrument, switch to read 'forward'
- (2) Turn the 'sensitivity' control to minimum and then press the transmit button. Quickly adjust the sensitivity control to obtain maximum reading on the meter, or the forward meter on instruments with two meters.
- (3) Now switch to 'reverse' or 'reflected' and the SWR will be indicated on the meter scale. Two meter instruments will show SWR on the 'reflected' meter.
- (4) The table will tell you whether to worry or not!



It is almost impossible to have a perfectly matched antenna system and a standing wave ratio of 1:1 is virtually impossible. Here's what happens to your transmitter power for various standing wave ratios — plus comments

SWR	PERCENTAGE POWER INTO ANTENNA	COMMENTS
1.1	100%	PERFECT
1.05 1	99.93%	EXCELLENT
1.1 1	99.78%	EXCELLENT
1.2 1	99%	V GOOD
1.5 1	96%	GOOD
2 1	88%	IMPROVE IF POSSIBLE
2.5 1	82%	IMPROVE IF POSSIBLE
3 1	75%	BAD



# AUSTRALIAN COLOUR TELEVISION TRANSMISSION STANDARDS

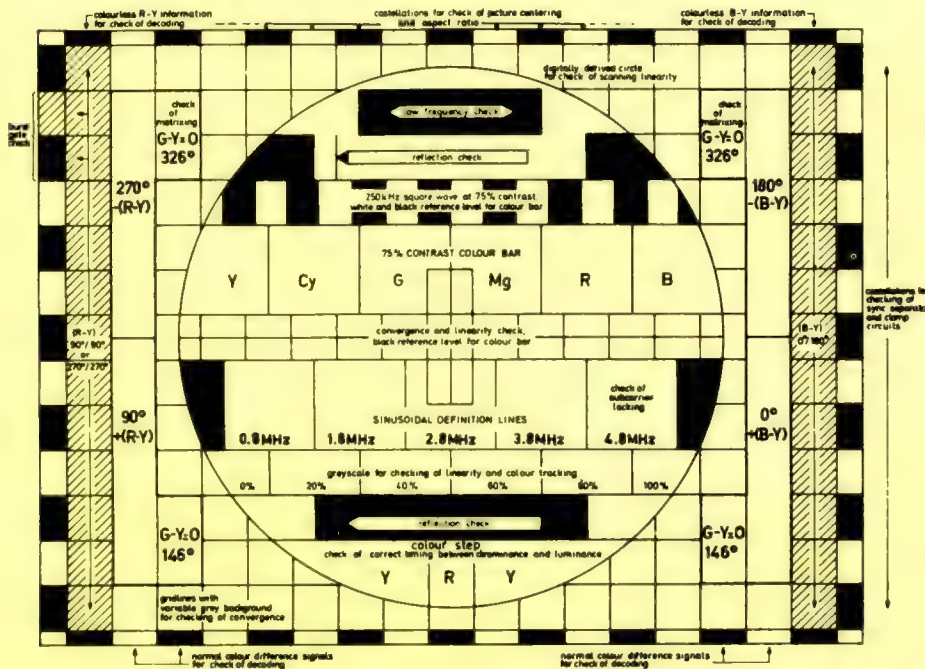
Channel Width:	7MHz vestigial sideband transmission
Vision Carrier:	1.25MHz above lower frequency edge of the channel
Sound Carrier:	5.496MHz above vision carrier
Vision Modulation:	Negative amplitude modulation
Lines Per Picture:	625 lines, interlaced 2:1
Line Frequency:	15,625Hz
Aspect Ratio:	4:3
Hor. Sync Pulse:	4.5µs to 4.9µs with 0.2µs to 0.4µs rise time
Hor. Sync Pulse Amp.:	100% carrier amplitude
Front Porch:	1.3µs to 1.8µs
Back Porch:	Line blanking interval - (front porch + sync pulse width)
Line Blanking Interval:	11.8µs to 12.3µs
Black and Blanking Level:	77% of peak carrier level
White Level:	20% of peak carrier level
Pre-equalising Pulse Interval:	2.5H (H=line period, 64µs)
Post-equalising Pulse Interval:	2.5H
Field Sync Pulse Interval:	2.5H
Field Blanking Interval:	25H + 12µs
Ratio $\frac{\text{Peak Vision Carrier Power}}{\text{Peak Sound Carrier Power}}$ :	10:1
Sound Modulation:	Frequency modulation
Sound Deviation:	± 50kHz

## COLOUR TRANSMISSION CHARACTERISTICS

Colour Coding System:	PAL D
Colour Sub-carrier:	4.43361875MHz
$E'_Y$ :	$0.299E'_R + 0.587E'_G + 0.114E'_B$
$E'_U$ :	$0.493(E'_B - E'_Y)$
$E'_V$ :	$0.877 E'_R - E'_Y$
Gamma of Picture Tube:	2.8: Correction at camera of $E_C^{0.457}$
Limits of Chrominance:	+0.57 to -1.3MHz for both V and U components
Sideband Components:	As the result of $E'_U \sin 2\pi f_{SC} t \pm E'_V \cos 2\pi f_{SC} t$
Reference White:	CIE D6500° * = x = 0.313, y = 0.329
Colour Burst Amplitude:	PtoP - 40% of black level to white level
Colour Burst Duration:	10 cycles commencing 5.6µs after leading edge of line sync pulse
	*Black Body temperature in °Kelvin (°C + 273.16)

## PHILIPS PM 5544 T.V. TEST PATTERN

(Courtesy of Philips Industries Ltd.)



## AUSTRALIAN VHF & UHF TELEVISION CHANNELS

VHF		
Channel	Vision Carrier Frequency (MHz)	Frequency Limits (MHz)
0	46.25	45-52
1	57.25	56-63
2	64.25	63-70
3	86.25	85-92
4	95.25	94-101
5	102.25	101-108
5A	138.25	137-144
6	175.25	174-181
7	182.25	181-188
8	189.25	188-195
9	196.25	195-202
10	209.25	208-215
11	216.25	215-222
UHF		
Channel	Vision Carrier Frequency (MHz)	Frequency Limits (MHz)
<b>Band IV</b>		
28	527.25	526-534
29	535.25	534-542
30	543.25	542-550
31	551.25	550-558
32	559.25	558-566
33	567.25	566-574
34	575.25	574-582
<b>Band V</b>		
39	615.25	614-622
40	623.25	622-630
41	631.25	630-638
42	639.25	638-646
43	647.25	646-654
44	655.25	654-662
45	663.25	662-670
46	671.25	670-678
47	679.25	678-686
48	687.25	686-694
49	695.25	694-702
50	703.25	702-710
51	711.25	710-718
52	719.25	718-726
53	727.25	726-734
54	735.25	734-742
55	743.25	742-750
56	751.25	750-758
57	759.25	758-766
58	767.25	766-774
59	775.25	774-782
60	783.25	782-790
61	791.25	790-798
62	799.25	798-806
63	807.25	806-814

## VHF AIRCRAFT CHANNELS

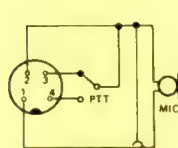
FREQ.	CHANNEL USAGE
118.1	Bankstown & other Secondary Towers
118.7	Canberra/Parafield Tower
118.9	Melbourne Departure
119.1	Club Frequency
119.4	Sydney Approach
120.5	Adel/Bris/Melb/Syd Tower
120.9	Auto Information Serv. (Secondary airports)
121.1	Area frequency
123.0	Sydney Departure
124.2	Adelaide Approach
124.4	Sydney Approach
124.7	Bris/Melb Approach
125.3	Sydney Departure
125.8	Area Frequency

## AERODROME TERMINAL INFORMATION

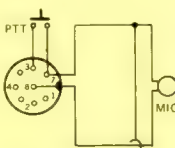
### A.M. MODE

ADELAIDE	117.3 MHz
SYDNEY	115.4 MHz
PERTH	113.7 MHz
CAIRNS	113.7 MHz
CANBERRA	113.5 MHz
ROCKHAMPTON	116.9 MHz
BRISBANE	113.9 MHz
MELBOURNE	113.9 MHz
ALICE SPRINGS	115.9 MHz
DARWIN	113.7 MHz
PORT HEADLAND	113.7 MHz

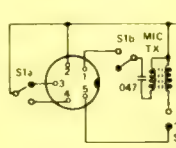
## TRANSCEIVER MICROPHONE CONNECTIONS



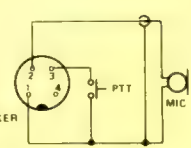
Suits:  $\square$   
Midland: 77A-857, 77A-882, 79A-892  
Scorpion, Hornet, Wasp, Bumblebee



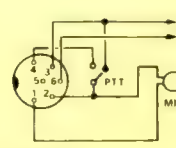
Suits:  $\square$   
Yaesu FT One, FT102, FT107, FT480, FT707, FT980



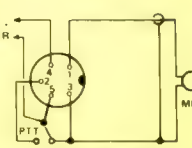
Suits:  $\square$   
Midland 77A-861



Suits:  $\square$   
Yaesu FT101, FT227, FT301, FT7, FT901, FT902



Suits:  $\square$   
Midland 77A-963



Suits:  $\square$   
Midland 76A-886

CONNECTIONS SHOWN LOOKING AT FRONT OF MICROPHONE PLUG







## AUSTRALIAN FM STATIONS

CALL SIGN	LOCATION	FREQ. (MHz.)	ERP (kW) (see note)	POLARIZATION (see note)		CALL SIGN	LOCATION	FREQ. (MHz.)	ERP (kW) (see note)	POLARIZATION (see note)		CALL SIGN	LOCATION	FREQ. (MHz.)	ERP (kW) (see note)	POLARIZATION (see note)	
NSW						VIC						SA					
2REM	Albury	107.9	0.3	*	m	3CCC	Castlemaine	103.9		*		5MMM	Adelaide	93.7	4	*	m
2ARM	Armidale	92.3	0.1	*	m	3GCR	Churchill	103.5	0.1	*	m	5SSA	Adelaide	107.5	5	**	m
2MCE	Bathurst	92.3	1	**	v	3ABC	Melbourne	105.7	50	**	h	5ABC	Loxton	105.1			
2NCR	Lismore	92.5	3	*	m	3EON	Melbourne	92.3	10	*	m	5ABC	Mt. Gambier	104.1	150	**	h
2ABC	Newcastle	106.1	25	*	h	3FOX	Melbourne	101.9	10	**	m	WA					
2NUR	Newcastle	103.7	3	*	m	3MBS	Melbourne	93.7	4	*	h	6ABC	Bunbury	93.3	60	*	h
2ABC	Sydney	92.9	50	*	h	3PBS	Melbourne	107.7	0.2	*	h	6NEW	Newman	92.9	0.25	*	h
2CBA	Sydney	103.2	5	*	m	3RRR	Melbourne	102.7	10	**	h	6ABC	Perth	97.5	50	*	h
2DAY	Sydney	104.1	35	**	m	QLD						6NOW	Perth	96.1	10	**	h
2UJ	Sydney	106.7	10	*	v	4ABC	Brisbane	106.1	50	*	h	6UVS	Perth	92.1	5	*	m
2MBS	Sydney	102.5	10	**	h	4MBS	Brisbane	103.3	2	*	h	TAS					
2MMM	Sydney	104.9	35	*	m	4MMM	Brisbane	104.1	6	**	m	7ABC	Hobart	93.9	15	*interim	h
2SER	Sydney	107.5	4	*	m	4ZZZ	Brisbane	102.1	6	**	h	7CAE	Hobart	92.1	1	*	h
2AAA	Wagga Wagga	107.1				4ABC	Rockhampton	93.7		*		7HFC	Hobart	103.3	1.5	*	m
						4DOB	Toowoomba	102.7	2	*	h	7ABC	Launceston	93.3	120	*	h
						4ABC	Townsville	101.5				NT					
ACT						SA						NT					
1ABC	Canberra	101.9	50	*	v	5ABC	Adelaide	92.1	10	*interim	h	8CCC	Alice Springs	102.1	0.125*		v
VIC						SA						NT					
3ABC	Ballarat	105.3	50	**	h	5EBI	Adelaide	92.9	4	*	m	8TOE	Darwin	104.1	10	*	m

Notes:  
 \* ERP Omnidirectional  
 \*\* ERP in direction of maximum radiation

## CB RADIO CHANNELS

HF 40 Channel Australian Standard

Channel No.	Frequency MHz
1	26.965
2	26.975
3	26.985
4	27.005
5	27.015
6	27.025
7	27.035
8	27.055
9 emergency	27.065
10	27.075
11	27.085
12	27.105
13	27.115
14	27.125
15	27.135
16	27.155
17	26.165
18	27.175
19	27.185
20	27.205

Licences for CB equipment can be obtained from the Department of Communication for an annual fee.  
 There are at present 40 channels available on the VHF Band.

UHF 40 Channel Australian Standard

Channel No.	Frequency MHz
1	476.425
2	476.450
3	476.475
4	476.500
5 emergency	476.525
6	476.550
7	476.575
8	476.600
9	476.625
10	476.650
11	476.675
12	476.700
13	476.725
14	476.750
15	476.775
16	476.800
17	476.825
18	476.850
19	476.875
20	476.900

There are also 40 channels available on the UHF CB Band as listed.  
 Further information may be obtained from the Department of Communication at an office nearest you.

## 27 MHz MARINE FREQUENCIES

Frequency MHz	Channel Use
27.680	Commercial Organisations. Domestic ship-shore-ship and intership, calling and working.
27.720	Professional Fishermen. Domestic, ship-shore-ship, calling and working.
27.820	Professional Fishermen. Intership.
27.860	Amateur Organisations. Alternate calling and working for distress, emergency and safety messages for weather and position reports.
27.880	Distress calling only.
27.900	Amateur Organisations. Domestic ship-shore-ship, calling and working.
27.910	Amateur Organisations. Domestic ship-shore-ship, calling and working.
27.940	Amateur Organisations. Club events, ship-shore-ship and intership, calling and working.
27.960	Amateur Organisations. Intership.
27.980	Surf rescue.

## AUSTRALIAN AMATEUR FREQUENCIES

1.800 to 1.860MHz  
 3.500 to 3.700MHz  
 3.784 to 3.800MHz  
 7.000 to 7.300MHz  
 10.100 to 10.150MHz  
 14.000 to 14.350MHz  
 18.068 to 18.168MHz  
 21.000 to 21.450MHz  
 24.890 to 24.990MHz  
 28.000 to 28.700MHz  
 52.000 to 54.00MHz  
 144.00 to 148.00MHz  
 420.00 to 450.00MHz  
 578.00 to 585.00MHz  
 1240.00 to 1300.00MHz  
 2300.00 to 2450.00MHz  
 3300.00 to 3600.00MHz  
 5650.00 to 5850.00MHz  
 10000.00 to 10600.00MHz  
 24000.00 to 24250.00MHz

## 2m REPEATERS CHANNEL NUMBERS AND FREQUENCIES

Repeater Channel No.		Repeater Input Frequency MHz		Repeater Output Frequency MHz	
New	Old	Frequency MHz	Channel No.	Frequency MHz	Channel No.
6625	—	146.025	6025	146.625	6625
6650	41	146.050	6050	146.650	6650
6675	—	146.075	6075	146.675	6675
6700	42	146.100	6100	146.700	6700
6725	—	146.125	6125	146.725	6725
6750	43	146.150	6150	146.750	6750
6775	—	146.175	6175	146.775	6775
6800	44	146.200	6200	146.800	6800
6825	—	146.225	6225	146.825	6825
6850	45	146.250	6250	146.850	6850
6875	—	146.275	6275	146.875	6875
6900	46	146.300	6300	146.900	6900
6925	—	146.325	6325	146.925	6925
6950	47	146.350	6350	146.950	6950
6975	—	146.375	6375	146.975	6975
7000	48	146.400	6400	147.000	7000
7025	—	147.625	7625	147.025	7025
7050	73	147.650	7650	147.050	7050
7075	—	147.675	7675	147.075	7075
7100	74	147.700	7700	147.100	7100
7125	—	147.725	7725	147.125	7125
7150	75	147.750	7750	147.150	7150
7175	—	147.775	7775	147.175	7175
7200	76	147.800	7800	147.200	7200
7225	—	147.825	7825	147.225	7225
7250	77	147.850	7850	147.250	7250
7275	—	147.875	7875	147.275	7275
7300	78	147.900	7900	147.300	7300
7325	—	147.925	7925	147.325	7325
7350	79	147.950	7950	147.350	7350
7375	—	147.975	7975	147.375	7375

## AUSTRALIAN NOVICE FREQUENCIES

3.525 to 3.625MHz  
 21.125 to 21.200MHz  
 28.100 to 28.600MHz

## 2m SIMPLEX CHANNEL NUMBERS AND FREQUENCIES

Channel No.		Frequency MHz		WIA Band Plan Recommended use for specific frequencies	
New	Old	Frequency MHz	Channel No.	Frequency MHz	Channel No.
6425	—	146.425	6425	146.425	6425
6450	49	146.450	6450	146.450	6450
6475	—	146.475	6475	146.475	6475
6500	50	146.500	6500	146.500	6500
6525	—	146.525	6525	146.525	6525
6550	51	146.550	6550	146.550	6550
6575	—	146.575	6575	146.575	6575
6600	52	146.600	6600	146.600	6600
7400	68	147.400	7400	147.400	7400
7425	—	147.425	7425	147.425	7425
7450	69	147.450	7450	147.450	7450
7475	—	147.475	7475	147.475	7475
7500	70	147.500	7500	147.500	7500
7525	—	147.525	7525	147.525	7525
7550	71	147.550	7550	147.550	7550
7575	—	147.575	7575	147.575	7575
7600	72	147.600	7600	147.600	7600

Notes:

1. Recommended use is for guideline purposes only.
2. Use of 146.000MHz (old channel 40) is not recommended as it interferes with the satellite band.



## AMATEUR BEACONS

Frequency	Call Sign	Location
<b>28MHz BEACONS</b>		
28.125	VE2TEN	Chicoutimi (reallocation soon, see below)
28.175	VE3TEN	Ottawa (reallocation soon, see below)
28.2025	9J2B	
28.205	DLOIGI	Mt. Predigstatul
28.2075	W4ESY	Englewood Fla.
28.210	3B8MS	Mauritius
28.2125	ZD9GI	Gough Island
28.215	GB3SX	Crowborough (reserved)
28.2175	VE2TEN	
28.220	5B4CY	ZYYI
28.225	VE8AA	Lake Contwoyto
28.230	ZL2MHF	Upper Hut
28.235	VP9BA	Southampton
28.2375	LA5TEN	Oslo
28.240	0A4CK	Lima
28.2425	A9XC	Hamala
28.2425	ZS1CTB	Cape Town
28.2475	EA2HB	San Sebastian
28.2525	VE7TEN	(reserved)
28.2575	DK0TE	Konstanz
28.260	VK5WI	Adelaide
28.262	VK2WI	Sydney
28.264	VK6RTV	Perth
28.266	Z22JV	Salisbury
28.266	VK6RTW	Albany
28.270	VK4RTC	Townsville
28.270	ZS6PW	Pretoria
28.2725	TU2ABJ	Abidjan
28.275	VE3TEN	(reserved)
28.2775	DFOAAB	Luetjenberg

Frequency	Call Sign	Location
28.280	YV5AYV	Caracas
28.2825	W9---	(reserved grp)
28.285	VP8ADE	Adelaide Island
28.2875	W8---	Tuckasegee N.C.
28.290	VS6HK	Cape D'Aquilar
28.295	VU2BCN	Bangalore
28.315	ZS6DN	Johannesburg
28.335	VK2WI	Sydney
28.888	W6IRT	N. Hollywood Cal.

### 50MHz BEACONS

50.005	H44HIR	Honiara
50.005	ZS5VHF	Natal, S. Africa
50.008	JA2IGY	Mie
50.020	GB3SIX	Anglesey
50.020	HH2PR	Haiti
50.025	6Y5RC	Jamaica
50.035	ZB2VHF	Gibraltar
50.038	HC1JX	Quito
50.038	FY7THF	French Guiana
50.040	W6MHZ	San Diego
50.048	VE6ARC	Alberta
50.050	ZS3E	South Africa
50.060	PY2AA	Sao Paulo
50.065	KH6EQI	Pearl Harbour
50.070	YV5ZZ	Caracas
50.075	VS6SIX	Hong Kong
50.080	T12NA	Costa Rica
50.088	VE1SIX	New Brunswick
50.103	F08DR	Tahiti
50.103	AH8A	American Samoa
50.498	5B4CY	Cyprus
51.020	ZL1UHF	Auckland

Frequency	Call Sign	Location
52.013	P29SIX	New Guinea
52.150	VK5KK	Arthurton
52.200	VK8VF	Darwin
52.250	ZL2VHM	Palmerston North
52.300	VK6RTV	Perth
52.320	VK6RTT	Camaron
52.330	VK3RGG	Geelong
52.350	VK6RTU	Kalgoorlie
52.370	VK7RST	Hobart
52.400	VK7RNT	Launceston
52.420	VK2WI	Sydney
52.425	VK2RGB	Gunnedah
52.435	VK3RMV	Hamilton
52.440	VK4RTL	Townsville
52.510	ZL2MHF	Mt. Climie
53.000	VK5VF	Mount Lofty

### 144MHz BEACONS

144.400	VK4RTT	Mt. Mowbrall
144.420	VK2WI	Sydney
144.475	VK1RTA	Canberra
144.550	VK5RSE	Mt. Gambier
144.600	VK6RTT	Camaron
144.700	VK3RTG	Vermont
144.800	VK5VF	Mt. Lofty
144.900	VK7RTX	Ulverstone
145.000	VK6RTV	Perth

### 432MHz BEACONS

432.410	VK6RRT	Camaron
432.440	VK4RBB	Brisbane
432.450	VK3RMB	Mt. Bunningyong

## AMATEUR BAND PLAN

### 160 Metres - 1.8 to 1.860MHz full license only

1.8 to 1.815MHz Morse section  
1.815 to 1.860MHz voice section  
1.825MHz national call channel  
1.820MHz also a popular crystal net

### 80 Metres - 3.5 to 3.8MHz novice & full license

3.525MHz to 3.625MHz is the Novice Band in Australia  
3.5 to 3.550MHz Morse section  
3.550 to 3.7MHz voice section  
3.7 to 3.75MHz is the US Novice Band  
3.565MHz is a popular Novice listing and working channel  
3.794 to 3.8MHz full licence only

### 40 Metres - 7.0 to 7.3MHz full license only

7.1 to 7.15MHz is the American Novice Band  
7.0 to 7.035MHz Morse segment  
7.035 to 7.3 MHz voice segment  
7.05MHz national listening channel, some AM stations but mainly Morse and LSB

### 30 Metres -24.89 to 24.99MHz, full license only

### 20 Metres - 14.0 to 14.35MHz, full license only

14.0 to 14.1MHz, Morse, 14.1 to 14.35MHz, voice  
14.1 to 14.2MHz popular in Europe  
14.2 to 14.35MHz popular in the USA

### 17 Metres - 18.068 to 18.168MHz full licence only

### 15 Metres - 21.0 to 21.45MHz, Novice & Full license

21.125 to 21.2MHz is the Novice Band in Australia  
21.0 to 21.15MHz is Morse  
21.15 to 21.45MHz is voice  
21.1 to 21.2MHz is the US Novice Band  
In the US, voice is 21.25 to 21.45MHz. Morse is 21.0 to 21.25MHz.

### 12 Metres - 10.1 to 10.15MHz full licence only

### 10 Metres - 28.0 to 29.7MHz Novice & Full license

28.1 to 28.6MHz is the Australian Novice Band  
28.1 to 28.2MHz is the US Novice Band  
28.0 to 28.5MHz is the American Morse section  
28.5 to 29.7MHz is the voice section  
28.5MHz is the national calling frequency in Australia

28.55MHz is a popular international channel

28.6MHz is the international DX listening frequency  
A 23 channel system has been organised for modifying 11 metre rigs to 10 metres. The range is from 28.3 to 28.59MHz.  
28.6MHz International FM calling channel, 29.3 to 29.5MHz used for communicating through the American and Russian Amateur Radio orbiting satellites.

CHAN	FREQ		
1	28.30	13	.45
2	.31	14	.46
3	.32	15	.47
4	.34	16	.49
5	.35	17	.50
6	.36	18	.51
7	.37	19	.52
8	.39	20	.54
9	.40	21	.55
10	.41	22	.56
11	.42	22a	.57
12	.44	23	.59

### 6 metres - 52-54MHz, full or limited license

### 2 metres -144-148MHz, full or limited license

### 70cm - 420-450MHz, full or limited license

### All UHF frequencies - full or limited license

## LICENCING INFORMATION

The Department of Communications conducts during the year examinations for Amateur Radio Operators Certificate of Proficiency at centres throughout Australia.- There are three classes of licence:-

Type 1 - Amateur Operation Certificate of Proficiency (AOCP)-

Type 2 - Amateur Operators Limited Certificate of Proficiency- (AOLCP)-

Type 3 - Novice Amateur Operators Certificate of Proficiency (NAOCP)-

Requirements for this licencing are:

AOCP-Knowledge of radio communication, operation and design of receivers, transmitters, serials and basic theory. Send and receive in plain language International Morse Code to a speed of 10 words per minute (WPM). The knowledge of the regulations covering operation of Amateur Radio Stations.

AOLCP - As above but no Morse Code examination required.

NAOCP-As per AOCP but of a lower standard with questions having multiple answers, Morse Code to 5WPM and regulations. This is a very easy exam to pass.

## BAND USAGE

AOCP All amateur bands (see details elsewhere). Maximum power input 400 W PEP, 150 W AM.

AOLCP All amateur bands above 52MHz. Maximum power input 400 W PEP, 150 W AM.

NAOCP 3.525 to 3.625MHz-

21.125 to 21.200MHz

28.100 to 28.600MHz

Maximum power input 30 W PEP, 10 W AM, crystal locked on transmit.



## REPEATERS

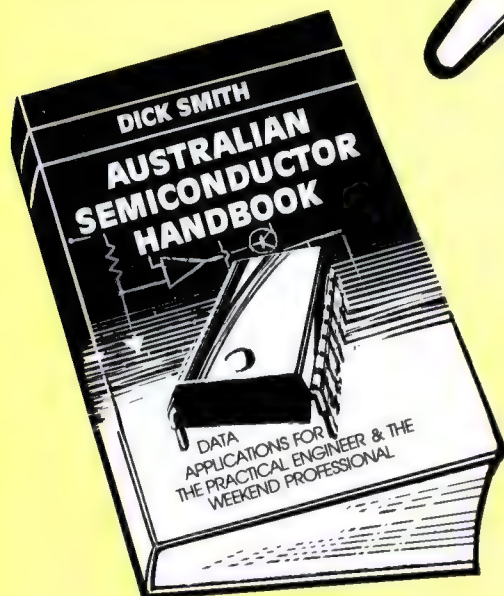
AREA	CALL SIGN	CHAN NO	SITE	AREA	CALL SIGN	CHAN NO	SITE
<b>NSW</b>				<b>ACT</b>			
2m				2m			
Newcastle Region	VK2RPI	6625	Maitland	Canberra	VK1RAC	6900	Black Hill
Western Blue Mountains	VK2RDX	6650	Mt. Bindo	ACT	VK1RGI	6950	Mt. Ginini
Nth. Coast, Coffs Harbour	VK2RCH	6650	Bellingen				
Sydney RTTY	VK2RTY	6675	NW Sydney	70cm			
Mid North Coast, Port Macquarie	VK2RPM	6700	North Taree	Canberra	VK1RUC	8525	Canberra City
Central West, Orange	VK2RAO	6700	Mt Canobolas				
Mid South Coast, Ulladulla	VK2RMU	6700	Milton				
Far South Coast, Bega	VK2RFS	6750	Mt. Mumbulla				
New England, Tamworth	VK2RTM	6750	Bauld Hill	<b>SOUTH AUSTRALIA</b>			
Central Coast, Gosford	VK2RAG	6750	Somersby	2m			
Riverina, Wagga	VK2RWG	6750	Mt. Flackney	Mid North	VK5RMN	6700	The Bluff
Far North Coast, Lismore	VK2RIC	6800	Parrots Nest	Adelaide	VK5RHO	6850	Houghton
Sydney, South	VK2RLE	6800	Heathcote	Adelaide	VK5RAD	7000	Crafers
Western Plains, Coonabarabran	VK2RCC	6800	Mt. Cennock	Mount Gambier	VK5RMG	1900	Mt Gambier
Murrumbidgee, Griffith	VK2RGF	6850	Mt. Binda				
South Coast, Wollongong	VK2RAW	6850	Mt. Murray				
New England, Gunnedah	VK2RAB	6850	Porcupine Res.				
Sydney, Northern Beaches	VK2RMB	6875	Terry Hills	<b>WESTERN AUSTRALIA</b>			
Newcastle, Hunter Valley	VK2RAN	6900	Mt. Sugarloaf	2m			
Sydney, Lower North Shore	VK2RGR	6925	Lane Cove West	Bunbury	VK6RSW	6650	Roelands
New England, Mores/Inverell	VK2RMI	6950	Terri Hi Hi	Perth	VK6RAP	6700	Roleystone
Sydney, Metro	VK2RWI	7000	Dural	Albany	VK6RAL	6700	Albany
New England, Tenterfield	VK2RNE	-----	Mt. Rumble	Perth	VK6RTH	6800	Tic Hill
Blue Mountains	VK2RBM	7050	Site Change Plan	Albany	VK6RAA	6800	Mt. Barker
Newcastle, L. Macquarie	VK2RTZ	7100	Wetigan Ranges	Bunbury	VK6RBY	6900	Mt. William
Statewide Emergency	-----	7125	NSW WICEN Port. 1	Tom Price	VK6RTP	6900	Mt. Tom Price
Sydney Emergency	VK2RWS	7150	Chatswood	Perth	VK6RPD	6950	Wait Bently
Statewide Emergency	-----	7175	NSW WICEN Port. 2	Emergency	VK6REE	6975	RPTR Group Sec
South Coast, Nowra	VK2RSD	7200	Cambewarra L. Out	Emergency	VK6REE	7000	RPTR Group Pri
Sydney	VK2RST	7225	Lane Cove West	Wagin	VK6RAW	7000	Mt. Latham
Sydney, Upper North Shore	VK2RNS	7250	Hornsby	Kalgoorlie	VK6RAK	7000	Kalgoorlie
South Coast, Wollongong	VK2RIL	7275	Sublime Point	Geraldton	VK6RGN	7000	Geraldton
S. Highlands, Mittagong	VK2RHR	7350	Mittagong	Port Hedland	VK6RNW	7000	Port Headland
				Perth	VK6RWC	7100	Leamurdie
70 cm				6m			
South Highlands	VK2RTK	8025	High Range	Perth	VK6RSW	3200	Perth
Central Coast, Gosford/Wyong	VK2RUG	8075	Somersby	70cm			
South Coast, Wollongong	VK2RUW	8225	Warilla	Perth	VK6RUF	8525	Roleystone
Sydney Emergency	VK2RWS	8275	Chatswood				
Central West, Bathurst	-----	8325	Mt. Panorama				
Blue Mountains, Central	VK2RUT	8375	Mt. Tomah				
Sydney, Southern Suburbs	VK2RUH	8425	Hurstville				
Sydney, Western Suburbs	VK2RRS	8475	Parramatta				
Sydney, General	VK2RUS	8525	Dural				
Newcastle, Coastal	VK2RUM	8625	Merewether H.	<b>TASMANIA</b>			
Newcastle, Hunter Valley	VK2RUN	8675	Mt. Sugarloaf	2m			
Far North Coast, Lismore	VK2RSC	8675	Mt. Nardi	Hobart	VK7RHT	6700	Mt. Wellington
North Wollongong	VK2RIN	8725	Sublime Point	North West Coast	VK7RNW	6750	Ulverston
				North East Coast	VK7RAA	7000	Mt. Barrow
<b>VICTORIA</b>							
2m							
Shepparton	VK3RGV	6650	Mt. Wombat	<b>NORTHERN TERRITORY</b>			
Melbourne	VK3RML	6700	Mt. Dandenong	2m			
Ballarat	VK3RBA	6750	Mt. Bunningyong	Alice Springs	VK6RCA	7000	Alice Springs
Latrobe Valley	VK3RLV	6800	Mt. Tassie				
Mildura	VK3RMA	6800	Mildura Airport				
Mount Macedon	VK3RMM	6850	Mt. Macedon				
Swan Hill	VK3RSH	6900	Swan Hill				
East Gippsland	VK3REG	6900	Mt. Sugarloaf	<b>QUEENSLAND</b>			
Grampians	VK3RWZ	6950	Mt. William	2m			
Geelong	VK3RGL	7000	Mt. Anakie	Gold Coast	VK4RGC	6700	Mt. Tamborine
Wodonga	VK3RNE	7000	Mt. Big Ben	Rockhampton	VK3RAR	6700	Rockhampton
South Gippsland	VK3RSG	7100	Gippsland	Townsville	VK4RAT	6700	Mt. Stuart
Bendigo	VK3RCV	7150	Mt. Alexandria	Bundaberg	VK4RBU	6800	Mt. Goonaneman
Melbourne	VK3RTY	7350	Mt. Dandenong	North Coast	VK4RNC	6850	Nr. Nambour
Melbourne	VK3REC	7175	Mt. Dandenong	Ipswich	VK4RAI	6900	Mt. Crosby
West Gippsland	VK3RWG	7225	Buln-Buln	Gladstone	VK4RGB	6900	Caliope Range
				Cairns	VK4RCA	6950	Mt. Bellenden Ker
70cm				Brisbane	VK4RBN	7000	Mt. Glorious
Melbourne	VK3ROU	8225	Mt. Dandenong	Mackay	VK4RMK	7000	NE Mackay
Melbourne	VK3RAD	8525	Burwood	Brisbane	VK4RBT	7050	Mt. Cotton
Wodonga	VK3RNU	8525	Mt. Stanley	Darling Downs	VK4RDD	7100	Toowoomba
Melbourne	VK3RMU	8675	Melbourne	Bundaberg	VK4RBS	7250	Mt. Goonaneman
Mount Macedon	VK3RCU	9275	Mt. Macedon	Mount Isa	VK4RMI	6800	Mt. Isa
Portable	VK3RWI	8625	VIC WICEN	Brisbane	VK4RQT	7300	Brisbane
Grampians	VK3RWU	8075	Mt. William				
Gippsland	VK3RGU	8375	Carrajung				
Shepparton	VK3RSU	9425	Mt. Wombat	70cm			
Geelong	VK3RBU	9575	Geelong	North Coast	VK4RNC	8075	Nr. Nambour
				Gold Coast	VK4RGC	8225	Mt. Tamborine
6m				Brisbane	VK4RBC	8525	Mt. Cootha
Melbourne	VK3RMH	3900	Hurstbridge	Bundaberg	VK4RBU	8875	Mt. Goonaneman
Melbourne	VK3RTN	3675	Mt. Dandenong	Brisbane	VK4R--	8375	Brisbane South



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What are the pin connections?  
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your questions are  
answered in  
one handy reference.



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**\$11.95**

### Electronics

Brown and Carr - 96 pages

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**\$39**

### Giant Handbook of Electrical Circuits

Raymond A Collins - 880 pages

Giant isn't the word: it's a whopping 880 pages!! With 80 chapters covering everything from crystal sets to computer circuitry, you're sure to find what you want here! Cat B-1780

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Barry Davis - 232 pages

An Australian written and published book - intended for tech students in electronics/electrical engineering fields, but has a mine of information for the hobbyist too. Covers everything from introduction to rectifiers to switch mode supplies. Cat B-3623

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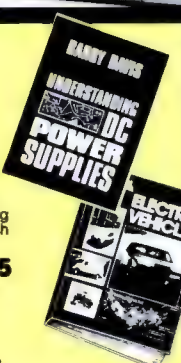
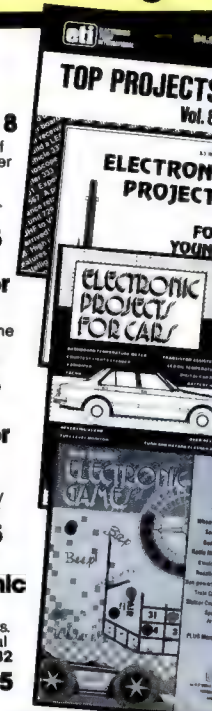
Sheldon R. Shackel - 168 pages

The most complete and fact filled book available today, describing in detail commercially built electric cars, trucks, cycles, trains and buses. The information supplied is supported with photographs and a history of each vehicle. Speed data, home built vehicles, state of the art and what the future holds are all covered. A totally absorbing book. Cat B-2400

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Books from Electronics Today International



## Catalogue & Data Books

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568 pages

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Contains complete information on the extensive National Semi-conductor bipolar logic families: TTL (54/74 series), Schottky (54/74S) low power Schottky (54LS/74LS), high speed (54H/74H) and low power (54L/74L) series IC's. Cat B-4022

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Tells you how to read specifications then gives you specifications in detail - all you need to know so that by knowing or calculating parameters you can replace even unmarked transistors. Cat B-4508

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Lancaster - 328 pages

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Explains the theory of operation of timer circuits and gives the experimenter dozens of recipes for cooking his own unique circuits. Shows 50 applications of the timer IC's in individual circuits and larger systems. Cat B-1244

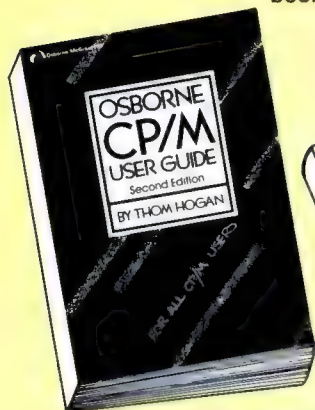
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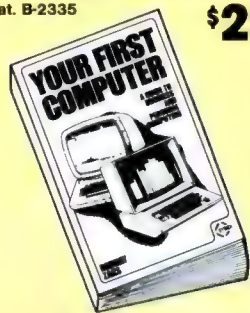
By Thom Hogan - 300 pages  
SECOND EDITION  
Want to know the basics of CP/M? This guide bridges the gap between technical manuals and your working knowledge of micro-computers.  
...one of the best CP/M manuals available.  
Creative Computing, May, 1982.  
Cat. B-2328

**\$19.95**

## The BASIC Handbook

By David A. Lien - 360 pages  
SECOND EDITION  
Regarded by many as THE reference work on BASIC, it will give you an incredibly detailed insight into the operation of this very popular computer language. It discusses very commonly used BASIC statement, function, operation and command. A must for every personal computer user: sooner or later you're going to use BASIC!  
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By Rodney Zaks - 256 pages  
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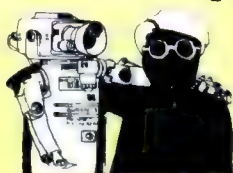
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By W. Scott Watson - 252 pages  
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For the Dick Smith

**WIZZARD**

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**NEW FOR 83**



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By Rodney Zaks - 624 pages  
This is a very big book covering a large subject. Designed to be clear and easy to read, this book will teach you how to program the very popular Z - 80 microprocessor - from simple applications to very complex & complete programs. Dr Rodney Zaks is highly qualified to lead you through the programming procedures in easy stages.  
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## Introduction to Pascal

Including UCSD PASCAL  
By Rodney Zaks - 421 pages  
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101 detailed games in Microsoft BASIC. Ideal programs for your System 80, TRS 80, PET, Apple etc. Every game is complete with the actual program run, a sample of the game & an explanation by the author of the game. These games are reprints from the very successful Creative Computing magazine. Games include: Star Trek, football Blackjack, Lunar Lander, Tic-Tac-Toe, Master mind and many more.  
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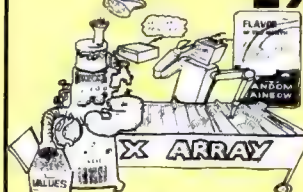
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## BASIC Faster & Better & other mysteries

By Lewis Rosenfelder - 290 pages  
A handy 'one source' reference to solving specific problems that you are likely to encounter when programming the SYSTEM 80 or TRS80 computers. Provides flexible routines, with the documentation that will allow you to modify them as your application requires.  
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**\$29.95**



## A Bit of BASIC

By T.A. Dwyer & M. Critchfield  
An informal but thorough introduction to computer programming in BASIC and extended BASIC. Includes eight-hour self-study course that shows a beginner how to write useful programs immediately. Also explores the most useful features of advanced BASIC.  
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42 pages

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The Super 80 is a brilliant computer to teach you how computers and the BASIC language work. But to get the most from the Super 80 you need the Super 80 Handbook. Half the book is an introduction to the BASIC used, with the other half a full reference manual.

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Full details page 94



## VIC Revealed

A collection of discoveries about the VIC - how it works, and how to use these facts to write better programs and perform more interesting functions. Includes full information on the heart of the VIC - the 6502 microprocessor.

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Sample programs in the book and on tape make this an interesting introduction for the non-computerist.

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A gentle but thorough introduction to BASIC programming. Excellent first book for new computerist. Instructional tapes are supplied.

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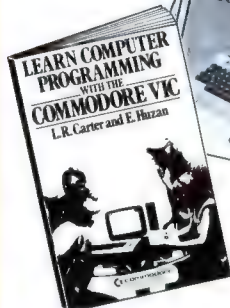
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Using the Commodore VIC, the authors explain how to write, develop and test BASIC programs. Many different applications, ranging from colour and sound animations to scientific and business applications, are described. A comprehensive series of exercises, with answers, is provided.

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## Dick Smith's easy way to programming in BASIC

John & Judy Deane - 107 Pages

Although the instruction manuals supplied with the System 80 computer are very good, you really should not pass up the opportunity of having this superb book. John & Judy Deane's easy going style of writing make the understanding of BASIC - basic The screen of your monitor will come alive as you progress through the book learning all the aspects of your System 80 and of course all about Level II BASIC. A highly recommended book for anyone about to buy a Dick Smith System 80 or System 80 owners.

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**\$9.95**

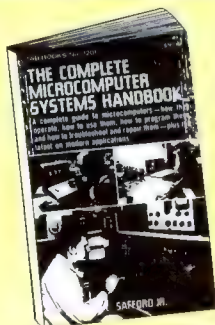
## The System 80 Technical Manual

57 Pages 23 circuit diagrams

Prepared especially for the System 80 owner who wants to know what makes his computer 'tick'. This book explains the functions of the different parts of the computer and also about memory maps, RAM, MUX, RAS, CAS, graphic mode etc. It also includes circuit diagrams for the different sections of the computer. Ideal for the person who wants to know exactly what's inside the System 80 - That includes servicemen!

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- ★ Making Computers Run & Analysing their Output
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- ★ What is a Program & Let's Examine Some Computer Problems & Troubles
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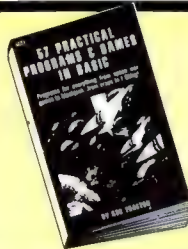
## 33 Challenging Computer Games TRS/Apple/Pet.

By David Chance - 256 pages

Like to mix fun-and-games with facts-and-data? Here's a book packed with all the information you need to learn about, set up and run programs for every kind of puzzle, game, or test program imaginable. You get war games, adventure and disaster games, learning games, etc.

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By Dennis Bathory Kríztz

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By H.C. Pennington

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## Learning TRS-80 Basic

By David A. Lien - 544 pages.

Whether you are studying alone at home, or learning BASIC in class with an instructor, this book acts like a correspondence course, without the correspondence. A quiz at the end of most chapters (with answers) checks you on the most important ideas before moving on. The last word on SYSTEM 80/TRS-80 BASIC.

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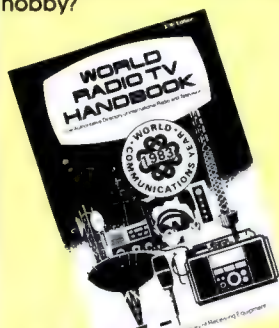
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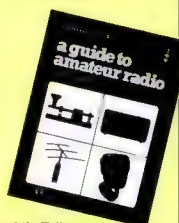
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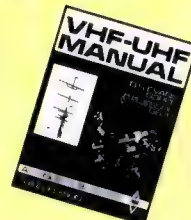


Pat Hawker G3VA - 18th Edition  
This RSGB publication covers all aspects of amateur radio from getting started through communications receivers to workshop practice, operating a station and exams - 140 pages of very useful information.

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# NEW FOR 83

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**VALUE!**

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Written to aid candidates preparing for the new multiple choice format A.O.C.P. exams. Contains 500 questions with answers and a proposed syllabus for study for the A.O.C.P.

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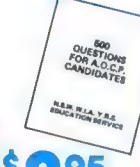


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For the aspiring novice this book is essential. Asks the questions most likely to arise in the exams. Covers all aspects from electrical laws to regulations and test equipment etc.

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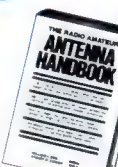


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## The Radio Amateur Antenna Handbook

Bill Orr & Stu Cowan  
Contains everything you need to know about antennas. Beams (Yagi, Quad, and L.P.Y.), vertical, horizontal and 'sloper' antennas plus information on all aspects of use, losses, etc.

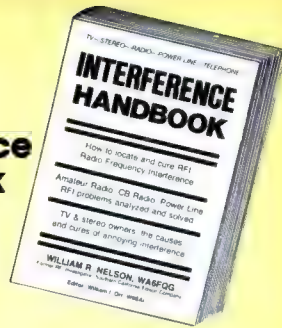
Cat B-2308



**\$8.95**

## Interference Handbook

The 'HOW' and 'WHY' book of interference

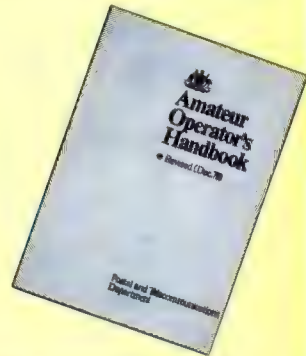


William R. Nelson — 247 pages  
This timely handbook covers every type of RFI (Radio Frequency Interference) problem and gives you the solutions based upon years of practical experience. It emphasises amateur radio, CB radio, and power line RFI problems — and how to solve them. Power line interference is covered in depth — how to locate it, cure it, work with the public safety precautions, and much more. Valuable steps for TV and stereo owners on how to stop annoying interference.

Cat B-2309

**\$9.95**

## Amateur Operator's Handbook



This book outlines the conditions governing the establishment and operation of radio stations in the amateur service, and is intended as a manual for the guidance of amateur station licences and persons preparing for Amateur Operator's Certificates of Proficiency.

This is an official Postal and Telecommunications Department publication.  
Cat B-2310

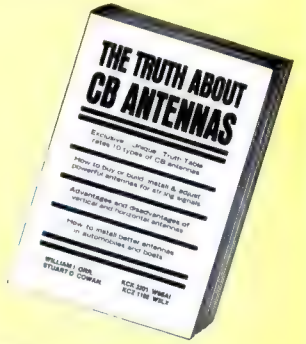
**\$3.60**

## Truth About CB Antennas

Orr and Cowan — 240 pages

Now, for the first time, a handbook exposes the false antenna claims and enables CBers to determine true power gain of the 10 most popular antennas. With this book you can buy or build, install and adjust for the strongest signals.

Cat B-2327



**\$8.50 VALUE**



See page 94 for

Dick Smith's Australian Radio Frequency Handbook

& Dick Smith's Australian Amateur Handbook

page 109



# the books that have **DICK FUN WAY**

## A beer powered radio – just one of the projects you can make! **Fun Way Volume 1**

This is the top selling Fun Way into Electronics Volume 1 that has proven that electronics can be fun. For the raw beginner, this book introduces 20 exciting projects that can be built by using a unique 'breadboard' construction system – no soldering so it is safe. Step-by-step you are taken through a series of procedures for construction, then 'how it works' and finally 'what to do next'. Each project is fully illustrated so that mistakes are virtually impossible. Also included in the books are cut-out overlays to glue to the 'breadboard' – these not only make construction very simple, they also show the circuit layout and what each component symbol looks like. This helps with the understanding of both the circuit and electronics in general. This top selling book is now in its fifth printing proving just how popular it has been. Don't miss out! Cat B-2600

- Hours of fun and excitement building 20 educational projects
- Completely safe – Ideal for all ages
- Find out what electronics is all about – the fun way!

### BUILD THESE PROJECTS:

A continuity indicator • A transistor tester • A water indicator • A light/dark indicator • The flasher • An electronic siren • A dog and cat communicator • A decision maker • Morse code generator • A crystal set • A one transistor amplifier • A beer powered radio • A two transistor amplifier • The world's simplest transmitter • A more powerful transmitter • A CB amateur radio receiver • A radio booster amplifier

**OVER 50,000 SOLD!** AND STILL ONLY **\$4.95**

## After mastering Fun Way Volume 1 – what better way to go than Volume 2? **Fun Way Volume 2**

In Volume 2 you are introduced to printed circuit boards and soldering. Both are fully explained and illustrated and they give you the choice of making your own boards or buying them already made. The basic laws of electronics, plus chapters on component codes, assembly hints etc. are fully explained. The projects have been chosen to be as 'useful' as possible so the constructor is not left with a pile of components which don't do anything. Also included in the book are fascinating details of electronics pioneers, ideas, etc. – very worthwhile information for anyone involved in electronics and great for school projects. Full constructional details are given for each project with bonus front-panel cut-outs at the back of the book to 'finish' your projects. All projects are battery operated. Cat B-2603

- How to solder
- How to use a multimeter
- How to make printed circuits

### BUILD THESE PROJECTS:

The multi-purpose flashing LED • Ding Dong Doorbell • Morse Code Trainer • Universal Timer • Electronic Dice • Monophonic Organ • Pocket Transistor Radio • Touch Switch • Mosquito Repeller • Simple Audio Amplifier • FM Wireless Microphone • Light Activated Switch • Pipe and Metal Locator • Sound Switch • Home and Car Burglar Alarm • Electronic Siren • LED Audio Level Display • Home Intercom • LED Digital Counter Module • IC Shortwave Receiver

**OVER 40,000 SOLD!** STILL ONLY **\$6.95**

### 7 DAY TRIAL OFFER

BUY EITHER BOOK, OR BOTH AND AFTER A 7 DAY EXAMINATION IF YOU'RE NOT TOTALLY SATISFIED YOU MAY RETURN THEM IN THEIR ORIGINAL CONDITION FOR A FULL REFUND!

Keep 'em neat!

## THE DICK SMITH Magazine File

A magazine file, ideal for any magazines that cover 12 issues in one year. Hard spine with metal rods for placement of the magazines. Vinyl covering with place to write on the spine. Maximum size of magazine insertions is 260mm high by 210mm wide. Cat B-4045



**\$4.50**



Our shelves  
are stocked with  
all your favourite  
magazines

Missed out on your favourite electronics magazine? Get it when you get your component! All stores have copies of the latest issues of Electronics Australia, Electronics Today, Amateur Radio Action, Your Computer and Byte magazines – and (depending on demand) usually have some back issues too. Sorry – magazines are not available through the Mail Order Centre.



# made electronics fun . . . SMITH'S INTO ELECTRONICS

**DICK SMITH'S  
FUN WAY INTO  
ELECTRONICS**



4 BEER POWERED RANGERS. JUST ONE OF THE EXCITING PROJECTS YOU CAN MAKE - WITH NO KNOWLEDGE OF ELECTRONICS AT ALL!

Hours of fun and excitement building 20 educational projects  
Completely safe - ideal for all ages  
Find out what electronics is all about - the fun way!

**ONLY \$4.95\***

written by **DICK SMITH**

**FIFTH PRINTING**

**OVER 60,000 SOLD**

**NO SOLDERING REQUIRED**



**DICK SMITH'S  
FUN WAY INTO ELECTRONICS  
Volume 2**



A universal timer - use it for perfect eggs every time!

A wireless microphone - build this simple transmitter and receive it on any FM radio. It's simple!

**PLUS:**  
How to solder  
How to use a multimeter  
How to make printed circuits  
And much more!

**ONLY \$6.95\***

written by **DICK SMITH**

**4th printing**

Includes pre-printed labels to give your projects a **PROFESSIONAL FINISH**

**Educational & Safe**

**OVER 60,000 SOLD**



**COMING SOON**

## FUN WAY Vol 3

Ready for more? Fun Way 3 is now in production and will be available later this year. 10 more exciting new projects to build - this time based on popular integrated circuits.

- Learn while you build!
- Each project makes something useful
- It could be the start of an exciting new career!

Watch for details in the electronics magazines



# Test Instruments

NEW  
FOR 

## Now an LCD Multimeter that measures capacitance as well!

Yes! It not only features the normal ranges found on a digital multimeter, it also has five ranges of capacitance checking, two ranges of conductance AND a diode check position! All this in a very accurate (less than 0.25% on DCV) and high impedance (10Mohm) instrument that is good enough for the designer's test bench, but has a low enough price for the hobbyist.

All this plus overload protection, automatic polarity, 2.5mm LCD digits - and measurement to 10A AC & DC!

### RANGES

DCV: 2, 20, 200, 1kV @ 0.25% ± 1 dig  
ACV: 2, 20, 200, 750V @ 0.75% ± 2 dig  
DC: 200µA, 2mA, 20mA, 200mA, 10A @ 0.5% ± 1 dig  
AC: 200µA, 2mA, 20mA, 200mA, 10A @ 0.5% ± 1 dig  
RES: 200, 2k, 20k, 200k, 2M, 20M ohms @ 1% ± 4 dig  
COND: 2ns, 200ms @ (H) .3% ± 1 dig

CAP: 2nF, 20nF, 200nF, 2µF, 20µF @ 1% ± 2 dig

DIODE TEST: 1mA, -2.8V

Complete with Test Leads, carry case and full instruction manual.

Cat. Q-1460

**\$129**



**FITS YOUR POCKET**



### Mini - sized Multimeter

A fantastic multimeter for anyone starting out in electronics - & just as useful for the house, car, etc. Is there power getting to that power point? Is the globe blown? etc etc. This is the multimeter to do it! Economical, reliable, & very simple to operate. Size is just 92 x 60 x 30mm, & it weighs only 168g.

- AC & DC VOLTAGES: 10, 50, 250, 1000, (2kV)
- DC CURRENT: 0.5, 100mA
- RESISTANCE: x1k (4.82k centre scale)

Cat. Q-1010

**\$13<sup>50</sup>**

**OUR BIGGEST SELLER**



### Handyman Multimeter

If you're into electronics, whether as a hobby or as a business, and you want an economical reliable multimeter which will do all normal measurements, this has got to be the one! We've sold thousands to students, to amateurs, to hobbyists to technicians... (even the repairmen who come to fix our photocopyers and other plant - use them!)

The Q-1024 is robust, offers high sensitivity and is very easy to use with minimal error because of its large, mirrored scale. It uses the large 4mm 'banana' - type plugs, which give more reliable connection, and aren't as liable to break off with rough treatment. And because the movement is diode protected, all a boo - boo is likely to cost you is a couple of diodes - not a whole new meter!

Comes complete with batteries, test leads and instructions.

- 24 RANGES!
- 20,000 Ohms per volt
- Diode protected movement

Cat. Q-1024

**LIMITED OFFER \$29<sup>50</sup>**

**PROFESSIONAL QUALITY**



100k Ohms per volt!  
More than just a sensitive multimeter...

### Checks transistors & measures capacitance too!

This is virtually a complete test bench in one small package... Firstly there's an ultra high sensitivity multimeter. It features both fuse and diode protection of the movement. And because the meter is larger the scales are much more easily read. And there's a mirror to help eliminate parallax errors. But there's more: much more! An inbuilt transistor oscillator allows you to measure capacitance - in two ranges. From 50pF up to 50µF! There's also a transistor checker, you can measure gain and leakage on both NPN & PNP types as well as check diodes.

If you want a multimeter that will do just about everything... this is it! Comes complete with batteries, Test leads & full instructions.

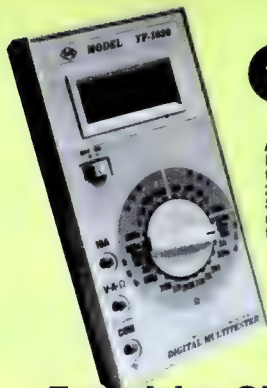
- High input impedance: 100k/volt
- Super sensitive 8.5µA movement
- Checks transistor  $h_{FE}$ ,  $I_{CO}$  PNP/NPN
- Built in oscillator gives two ranges of capacitance.

Cat. Q-1140

**\$69<sup>00</sup>**

Make your mailbox your own Dick Smith branch





# Quality Digital Multimeter

At last - a digital multimeter that you don't need to madly swap leads on every time you want to change from one measurement to another! Just single knob selection, on a rugged, low profile 25 range multimeter featuring a highly visible LCD display. Single range selector giving 25 ranges, AC/DC current to a massive 10A with overload protection on all ranges. The ideal test instrument for hobbyists, also great for the serviceman.

- SINGLE KNOB SELECTION!
- COMPLETE WITH TEST LEADS AND PROTECTIVE CARRY CASE

RANGES:  
DCV: 2, 20, 200 & 1kV  
ACV: 2, 20, 200 & 750V  
DC: 200uA, 2mA, 20mA, 200mA & 10A  
AC: 200uA, 2mA, 20mA, 200mA & 10A  
RES: 200, 2k, 20k, 200k, 2M & 20M ohms

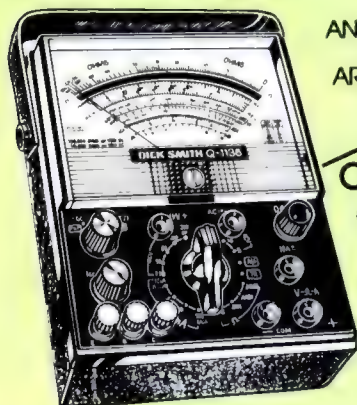
Cat. Q-1455

great value **\$79<sup>95</sup>**

NEW  
FOR

## Transistor Checker/ Multimeter

This multimeter is similar to the Q-1140, but there are a few differences. It doesn't have the capacitance checking facilities, nor does it have a 250mV DC position. Now for the good news: **IT'S CHEAPER!!!!**  
If you don't need to measure capacitors (for instance, you might have an AC Bridge), you can save \$15.00 by buying this model instead of the Q-1140. Otherwise, everything else is pretty much the same: features, accessories, etc... **Isn't a \$15.00 saving worth making?**



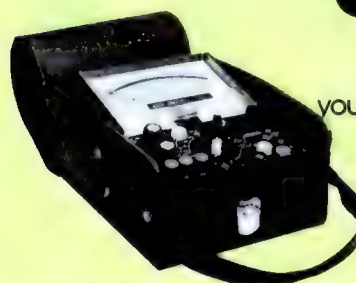
AND YOU  
SAVE  
AROUND  
**\$15.00**

OVER  
**6,000**  
SOLD

DC VOLTAGES: 0.5, 2.5, 10, 50, 250, 1000V (100kV/V)  
AC VOLTAGES: 5, 10, 50, 250, 1000V (10kV/V)  
DC CURRENT: 10uA, 25uA, 0.5mA, 5mA, 50mA, 500mA, 10A  
AC CURRENT: 10A  
DECIBELS: -10 to +62dB  
RESISTANCE: x1, x10, x1k, x10k (20, 200, 20k, 200k centre scale)  
TRANSISTORS:  $h_{FE}$  0 - 500;  $I_{CO}$  0 - 50uA

Cat. Q-1136

**\$59<sup>00</sup>**



Protect  
your investment

Quality  
Carry  
Case

More than just protection for your valuable multimeter, it keeps your leads and instructions neat, clean & tidy. There is also room for you to store notes and circuits etc.

Suits models Q-1136, Q-1140  
and Q-1200.

Cat. Q-1137

## Multimeter/ RF PROBE

Extend the useful range of your multimeter way up into the RF range with this neat probe. Frequency response is 150kHz to 30MHz (ref. 500kHz). Comes equipped with 4mm banana plugs for direct multimeter connection. Ideal for use with our Q-1140, Q-1136, Q-1200, or Q-1024 multimeters.



**\$18<sup>95</sup>**

Cat. Q-1138

## Economy Multimeter



It may be a budget multimeter, but this one has top performance for the price: an amazing 20,000 Ohms per volt and it's under \$20.00! Huge easy-to-read scales with 20 ranges! Size is only 130 x 90 x 38mm, weight just 270g. Comes complete with batteries, test leads and instructions.

### SPECIFICATIONS:

DC VOLTAGES: 0.1, 2.5, 10, 50, 250, 1000.  
AC VOLTAGES: 10, 50, 250, 1000  
DC CURRENT: 0.05, 2.5, 25, 250mA  
RESISTANCE: x1, x10, x1k (20, 200, 20k mid.)

Cat. Q-1020

**\$22<sup>50</sup>**

## Economy Digital Multi- meter



At last - a fantastic full auto-ranging budget priced multimeter!

This LCD Digital Multimeter is a portable 3 1/2 digit, compact-sized tester ideally suited for field, lab, shop, bench and home applications. Here are some of the features that qualify it as a real 'pro':

- FULL AUTO-RANGING • OVERLOAD PROTECTION • LOW BATTERY VOLTAGE AUTOMATICALLY DETECTED AND DISPLAYED • LOW COST • 0.8%, 1.35% DC V. READING ERROR • BATTERY OPERATED - TAKES TWO AA SIZED 1.5V BATTERIES

### SPECIFICATIONS

DISPLAY 3 1/2 Digits LCD  
RANGE SWITCH Full auto ranging  
OVERLOAD - Blanking of all digits except MSD 1  
INDICATION Automatic ("—" in display window)  
POLARITY 1999  
MAX. INDICATION 'H' mark on LCD readout  
LOW BATTERY 2 times/second  
SAMPLING TIME 0° to 40° at RH < 80%  
OPERATING TEMP. -20° to 60° at RH of < 70%  
STORAGE TEMP. Two AA size 1.5V battery  
BATTERY 5mW Typ.  
POWER CONS. AC 1.5KV/minute  
BREAKDOWN VOLT. 80(w) x 160(h) x 30(d)mm  
SIZE 250kg  
WEIGHT

Cat. Q-1446

**\$ ONLY  
45**

## Oskerblock SWR 200 SWR/Power Meter

A truly professional instrument for the keen amateur. Uses the THROUGH - LINE principle. Covers 3MHz to 200MHz (guaranteed) with in-built changeover for 52 & 75 Ohms. Each unit is individually calibrated with its calibration chart attached to the instrument. Four power ranges cover 0-2W, 0-20W, 0-200W and 0-2kW. Measures VSWR 1:1 to 1:10 and infinity. PL259 connection.

### SPECIFICATIONS:

SWR METER: 100W @ 3.5MHz (FSMP); 50W @ 7MHz (FSMP); 15W @ 14MHz (FSMP); 3MHz to 200MHz: 5W @ 21/28 MHz (FSMP); 75 or 52 ohms: 1W @ 50/144MHz (FSMP).  
Type: Directional coupler  
Ratios: 1:1 to 1:10 and infinity.  
Frequency ranges: 3MHz to 200 MHz.  
Impedance: 75 or 52 ohms

### POWER METER

Type: Through Line  
Power Ranges: 0-200W, 0-2kW @ 3.5/7MHz  
0-20W, 0-200W, 0-2kW @ 14/21/28MHz  
0-2W, 0-20W, 0-200W 3 50/144MHz  
Accuracy: 15% 3 SWR 1:1 Dia setting zero  
Safety Rating: 2kW @ SWR 1.1-1  
750W @ SWR 1.5-1  
200W @ SWR 3.0-1  
Meters Sensitivity: 90uA DC  
Connectors: UHF type (SO-239)  
Dimensions: 76(h) x 110(d) x 220(w)mm  
Weight: 1.25kg

(FSMP) — Full  
Scale Minimum  
Power



**\$99<sup>95</sup>**

Cat. Q-1340

## 27MHz TX/RX Tester



This tester has been specially developed for the serviceman to facilitate the location of faults in hand held transceivers, etc. It can also be used on base stations up to 5 watts.

This portable unit is supplied with comprehensive instructions, test leads and telescopic antenna. Now anyone can tune up their own set and save a fortune on service

### Just look at what it'll do

1. Measure power output up to 5W
2. Standing Wave Ratio, VSWR from 1:1 to 1:3
3. Modulation percentage 0-100%
4. Relative field strength
5. Generate 27 MHz RF for receiver tuning
6. Check crystal activity
7. Generate af modulated 27MHz
8. Generate a 100Hz for audio testing
9. Act as a dummy load for testing transmitters up to 5W

VALUE  
**\$69<sup>50</sup>**

Cat. Q-1380



# Test Instruments

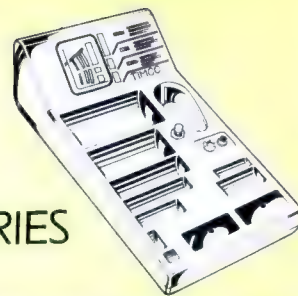
## Signal injector



**\$7<sup>50</sup>**

One of the handiest devices to have in your tool box. Check out both audio and RF circuits (harmonics extend to many MHz) simply and easily. Often the quickest method of fault finding (and one of the cheapest!) Self contained, battery operated with probe and earth clip.  
Cat.Q-1270

SAVE  
ON  
BATTERIES

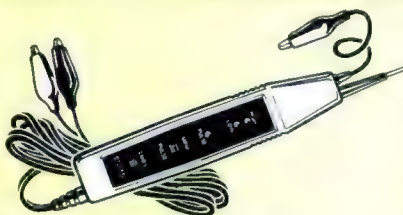


## Logic Probe

A superb time-saving tool for the hobbyist, technician, engineer, etc. This outstanding logic probe hooks onto the circuit under test for its power (5V DC), and you can tell at a glance what the logic level is by which of the three LEDs is glowing. It is easily held in one hand — so your other hand is left free!

Cat.Q-1272

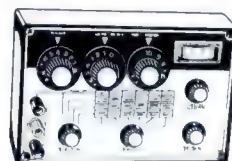
**\$32<sup>50</sup>**



## Signal Generators

### AC Bridge

**\$89<sup>00</sup>**



Better than a multimeter... With a bridge, you can accurately and easily measure inductance, capacitance, resistance, turn ratios on transformers, compare unknown components, etc. etc. Easy to use — operating frequency is 1kHz (supplied by internal oscillator)

Cat.Q-1420

#### RANGE

Resistance (R)	0.1 ohm — 11.1M ohm
Inductance (L)	1uH — 111 H
Capacitance (C)	10pF — 1110uF
Turns ratio (T)	1/10000 — 1/11100
Power requirement	1 x 9V dry battery (Cat.S-3006)
Weight	1kg
Dimensions	128 x 182 x 75mm

## Wide range AF/RF signal Generator

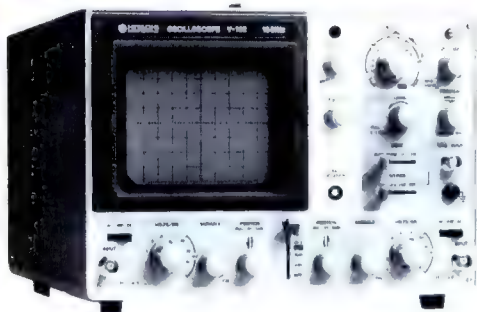
Two instruments in one! This new wideband signal generator is ideal for the service technician, developmental laboratory, the amateur and the hobbyist. Solid state, compact and lightweight, it gives you a selectable sinewave or squarewave at any frequency from 18Hz to 200MHz. Supplied with coax cable.

Cat.Q-1305



**\$160<sup>00</sup>**

Frequency	18Hz to 220MHz
AF section	18Hz to 220kHz, sine or square
Output	Sine 10V P-P, Square 4V P-P
RF section range	100kHz to 50MHz on 6 fundamental bands, 50MHz to 200MHz on harmonics
Size	200(h) x 130(w) x 100(d)



## HITACHI 15MHz Dual Trace CRO

Cat.Q-1242

Model  
V-152B

For the service bench, the development laboratory, the technical college, university or school — or even the serious hobbyist or amateur who simply wants a top-of-the-line CRO without breaking the bank, we now have the outstanding Hitachi V-152B 15MHz Dual Trace Oscilloscope. And it costs no more than previous CRO's we've sold which didn't have anywhere near the number of features of the Hitachi V-152B.

- Extra high sensitivity: up to 1mV/div (with x5)
- TV Sync-separator circuit for rapid video measurement
- 5 display modes: Ch1, Ch2, or dual, add, and difference
- Trace rotation via front panel control
- Colour-coded panel layout for operating ease
- Z-axis input: use as CRT display
- One-touch 10x sweep magnifier
- One-touch wave-form shifting
- Very convenient X-Y operation
- Built-in delay line for fast rising waveforms

Hitachi Oscilloscopes are made in Japan to exacting standards by Hitachi Denshi Ltd. They are unequalled for reliability, operating ease, technical features and economy. You can confidently buy Hitachi test instruments and expect year after year of trouble-free use.

VALUE AT

**\$599<sup>00</sup>**

**TAX-FREE PRICES  
AVAILABLE FOR  
APPROVED TAX-FREE  
PURCHASERS**

Vertical Sensitivity: 5mV/div — 5V/div  
Bandwidth: DC — 15MHz, -3dB  
Rise Time: 24ns  
Non-dist.max amplitude: More than 4 div. @ 15MHz  
Input R and C: Direct 1Mohm, approx. 30pF  
Maximum input voltage: 600V P-P (300V AC + DC peak)  
Display modes: CH1, CH2, DUAL, ADD, DIFF  
Sweep Time: 0.2us — 0.2s/div; 19 calibrated steps  
Internal Trigger Sensitivity: 20Hz—2MHz 0.5 div  
2—15MHz 1.5 div  
External Trigger Sensitivity: 20Hz—2MHz 800mV  
2—15MHz 800mV  
Power requirements: 120-240V, 40W  
Dimensions: 275(w) x 190(h) x 400(d)mm  
Weight: Approx. 8kg

## 100MHz x1/x10 CRO PROBE

This incredibly versatile probe set will suit virtually any CRO and give you all the features of a probe set you would pay \$\$\$ more for!

#### Here's what you get:

Basic probe with inbuilt x1/x10 switch, 1.5 metres of cable, complete with coax type CRO connector and wandering earth lead with alligator clip.

#### Plus these accessories:

1. IC Adaptor tip — insulates probe from adjacent IC pins.
2. Spring clip — hooks on to keep your hands free.
3. Insulating shroud — enables you to probe deeply into equipment without fear of shorting.
4. BNC Adaptor — allows you to plug straight into BNC sockets.
5. Trimming tool — adjusts input capacitance over frequency range.
6. Plastic wallet — all housed in a plastic wallet for safe keeping!

Cat.Q-1245

#### SPECIFICATIONS:

Working Voltage:  
Bandwidth:

Input Resistance:  
Input Capacitance:

Risetime:  
Compensation Range:  
REF Position:

**\$29<sup>95</sup>**  
600V Pk (or 600V DC)  
x1 position: DC — 10MHz  
x10 position: DC — 100MHz  
x1 1M ohm; x10 10M ohm  
x1 40pF plus CRO capacitance  
x10 11.5pF if CRO has 30pF input cap.  
x10 position 3.5 nanoseconds  
x10 position 10-60pF  
Probe grounded via 9M resistor



**was  
\$35<sup>95</sup>**



Don't throw 'em out, test them!

## Dick Smith BATTERY, LAMP & FUSE TESTER

- \*BATTERIES** Checks a huge range of 1.5V - 9V cells actually under load—the way they should be checked! Even checks NiCads, calculator, watch and photographic batteries.
- \*LAMPS** Checks miniature lamps for continuity.
- \*FUSES** Checks cartridge type fuses for continuity.

May be used as a general continuity tester and as a NiCad charger.

Cat. Q-1525 **\$9<sup>95</sup>**

Cat. S-3006 9V battery required.

greater accuracy —  
lower cost

## 8610B FREQUENCY COUNTER



NEW  
FOR **83**

This American-developed Sabtronics 9 digit 600MHz Frequency Counter is a top quality instrument with more features and better accuracy than any other comparable unit on the market today. And it costs surprisingly less! Just look at these features:

- 9 digit resolution for more precise readings
- Excellent 30mV sensitivity up to 600MHz
- 3 position switch selectable gate times
- 10MHz crystal controlled time base for greater accuracy
- 2 separate inputs for added versatility
- Front panel sensitivity control

Cat. Q-1300

### SPECIFICATIONS

FREQUENCY RANGE:	10Hz - 600 MHz in 3 ranges
INPUT IMPEDANCE:	Input A: 1M $\Omega$ /100pF Input B: 50 $\Omega$ nominal
SENSITIVITY:	15mV rms, 10Hz - 100MHz 20mV rms, 100 - 600MHz 30mV rms, 600 MHz - 1 GHz
INPUT PROTECTION:	400V P-P at 10Hz declining with frequency to 3V P-P at 1 GHz
GATE TIMES:	0.1 sec., 1 sec., 10 sec switch selectable
DISPLAY:	9-digit 0.4" (9mm) LED with automatic decimal point. Leading zero suppression. Discrete LED gate status indicator.
MAX. RESOLUTION:	0.1 Hz on 10 MHz range with 10 second gate time 1 Hz on 100 MHz range with 10 second gate time 10 Hz on 600 MHz/1 GHz range with 10 second gate time
TIME BASE:	FREQUENCY: 10 MHz TEMPERATURE STABILITY: $\pm$ ppm from 0° - 40°C STABILITY: $\pm$ 2 ppm AGEING RATE: <5 ppm/year
MEASUREMENT ACCURACY:	1 Hz + 1 digit + Time Base error
POWER REQUIREMENT:	4.8 - 6.5V DC @ 300 mA (4 "C" cells) or optional AC adaptor/charger
DIMENSIONS:	8" (W) x 6.5" (D) x 3" H (203 x 165 x 76mm)
WEIGHT:	1.3lbs (590g) without batteries

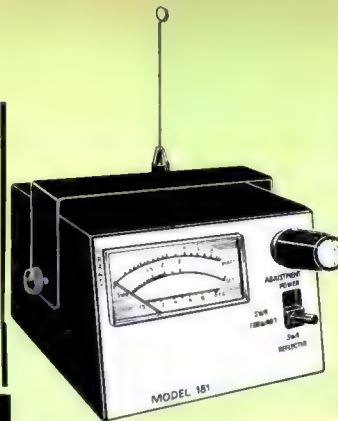
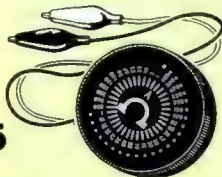
Amazing  
Value at **\$225<sup>00</sup>**

## Resistance Substitution Wheel

Cat. Q-1410

Convenient size with large, easy to read value selection that enables you to select values from 5 ohms to 1Mohm in 36 steps using most common divisions. Complete with leads and insulated crocodile clips.

was \$7<sup>95</sup> Now **\$6<sup>95</sup>**  
Only



## Power/ SWR Meter

Now a brand new meter which not only has the usual power and SWR measurements - it also has a built-in field strength measurement function enabling you to make accurate and precise antenna radiation pattern and other RF energy measurements. Fitted with standard SO-239 sockets for easy connection to your CB or low power amateur rig, it can be left permanently in the antenna line to warn you of any problems before they start cooking output transistors.

Cat. Q-1350

Field strength graduation: 1-10  
Measuring power: 10W full scale  
Frequency Response: 27MHz (CB Band)  
SWR Indication: 1.0 - 3.0 and above  
Impedance: 50 ohms  
Dimensions: 98(W) x 62(H) x 46(D)mm  
Weight: approximately 300 grams

Amazing  
value at **\$22<sup>50</sup>**

## Multimeter probes/leads

### UNIVERSAL 16 PIECE METER LEAD SET

This set has everything you'll need for your multimeter. You get a pair of red and black test leads with screw-in connectors on each end. Into these you screw any of the 14 adaptor probes and plugs: 4 x 4mm plugs, 2 x 1.5mm plugs, 2 long probes, 2 spade lugs & 4 insulated alligator clips. As you can see, it is suitable for any meter, and it is truly versatile. High quality — and cheaper than other sets on the market.

Cat. W-4526

**\$5<sup>75</sup>**

### IC TEST CLIP LEADS

Great for working with IC's (or any other components!) With insulated IC test clips (see below) one end, 4mm banana plugs on the other. Leaves hands free while measuring.

Cat. W-4509

**\$3<sup>75</sup>**

### 1.5mm PLUG TEST LEAD SETS

As supplied with most multimeters (and which are always getting lost!) 90cm long red and black leads with 1.5mm plugs and long insulated probes.

Cat. W-4504

**\$1<sup>95</sup>**

### 4mm PLUG TEST LEAD SETS

As above, but with 4mm banana plugs to suit larger diameter multimeter sockets.

Cat. W-4508

**\$1<sup>95</sup>**

### COILED TEST LEADS: SELF RETRACTING

You know the problem of meter leads cluttering up the bench? It won't happen with these leads. They're coiled and return to their coiled shape after being extended. A red & black pair with 1.5mm meter plugs.

Cat. W-4520

**\$2<sup>95</sup>**

## Testclips, Jumpers etc.

### ALLIGATOR CLIPS - MINI

Fully insulated with plastic shroud, easy to solder to: two colours available.

RED Cat. W-4550  
BLACK Cat. W-4552

**25¢ ea.**  
10 up 20¢ each

### ALLIGATOR CLIPS - LARGE

With red or black insulated grips.

RED Cat. W-4554  
BLACK Cat. W-4556

**35¢ ea.**  
10 up 30¢ each

### IC TEST CLIPS

Similar to the popular E-Z hooks, but cheaper. Ideal for working with small components, easy to solder to.

RED Cat. W-4580  
BLACK Cat. W-4582

**95¢ ea.**  
10 up 75¢ each

### 16 PIN IC TEST CLIP

Makes connection of DIL IC easy — without the danger of shorting out pins. Use on 8, 14 or 16 pin IC's. Often used as part of a test jig for production testing or service work. Spring loaded.

Cat. W-4800

**\$3<sup>95</sup>**

### HOOK PROBE

With a 'syringe' action and a long shaft — makes connection in tight corners very easy. Knurled grip screw for instant lead attachment, positive action & sure grip for all your test work.

RED Cat. W-4589  
BLACK Cat. W-4590

**\$2<sup>50</sup> ea.**

### JUMPER LEAD SET

### 10 LEADS

Makes breadboarding easy! 10 380mm leads, with alligator clips each end. 5 different colours for easy identification.

Cat. W-4570

**\$2<sup>95</sup>**

### IC JUMPER LEAD SET

A pair of red & black leads, one metre long, with matching IC test clip at each end.

Cat. W-4572

**\$3<sup>95</sup>**



# Quality Tools

**SAVE AROUND \$10  
ON EQUIVALENT UNITS**

A professional soldering station at a hobbyist's price

## The DICK SMITH Soldering Station

If you're serious about good soldering, there is only one way to do it - with a temperature controlled soldering iron.

Until now, temperature controlled irons have been expensive. But Dick Smith Electronics has solved the problem!

The Dick Smith Auto Temp offers you the best quality at an unbelievably low price. Compare our soldering station with others. Ours features fully variable temperature control (from around 200 degrees to over 500 degrees Celsius) with a temperature meter to show you what's happening.

And it's fully approved by the Energy Authority. The station comes complete with lightweight iron, iron holder and cleaning sponge, with a comprehensive instruction manual with full servicing information included - just in case you need it.

And the price for this superb unit?

An amazing \$65!

Cat. T - 2000

**AND IT'S ONLY \$65<sup>00</sup>**

**DICK SMITH  
EXCLUSIVE**

**Generous discounts available**

As these stations are so suitable for production lines, service centres, etc., our Wholesale Department will gladly give you full details of prices, etc., for quantity purchases.

Call us on Sydney (02)888 3200 - Ask for 'DSD'



**DIRECT  
IMPORT**

**Quality  
Accessories  
to suit**

**Replacement Tips:**

Medium Chisel ..... Cat. T-2002 ..... **\$3<sup>20</sup>**

Thick Chisel ..... Cat. T-2004 ..... **\$3<sup>20</sup>**

Fine Conical ..... Cat. T-2006 ..... **\$3<sup>20</sup>**

**Replacement Sponge:**

Cat. T-2010 ..... **\$1<sup>50</sup>**

**Take & use anywhere**

## DICK SMITH WELER Cordless soldering Iron



Even has  
built-in light

Dick Smith has taken the Weller Cordless iron and packed only the essential items in the box - you get what you need without paying for items you don't need. The iron has a built-in NiCad battery that can be charged from the supplied charger. At the touch of a button the tip, which is supplied with the iron, heats up to approximately 370 degrees in seconds. This iron is equivalent to the normal 15 watt irons that plug into the AC mains. There is a built-in light for those jobs that are in dark corners and the iron is absolutely ideal for CMOS work.

Cat. T-1050

**AMAZING  
VALUE FOR  
ONLY \$37<sup>50</sup> Complete  
with charger**

**Spare Tips  
to suit**

3mm Screwdriver Tip.....  
Cat. T - 1240..... **\$3<sup>95</sup>**

1.5mm Screwdriver Tip.....  
Cat. T-1242..... **\$3<sup>95</sup>**

0.8mm Conical Tip.....  
Cat. T - 1246..... **\$3<sup>95</sup>**



## Economy 12V Iron



**DIRECT  
IMPORT**

This little iron is superb - and very popular! It operates from 12volts, either AC or DC - so it's just as much at home in the car or on the workbench! Use it with any 12 volt battery, supply or transformer capable of delivering 1.5A. Element is 30 watts, so this iron is ideally suited to small PCB work, etc. With a low power iron there's less chance of damaging delicate components. Complete with long lead, fitted with cigar lighter plug. Why not buy a couple - one to keep in the car and one on the bench. You never know when you might need it.

Cat. T - 1910

**ONLY \$4<sup>20</sup>**

**KEEP ONE IN YOUR  
CAR OR BOAT**



**OVER 50,000 SOLD**



**AMAZING VALUE**


How often have you required a soldering iron around the house or workshop only to find you don't have one! You look at the trade books and end up completely baffled by what is available. This iron will end all of your problems. A general purpose iron that can be plugged into the 240V AC mains and will give 25 watts of heat very quickly. That is more than enough for jobs around the home or workshop. It has a stainless steel barrel and comes with a copper tip. Complete and ready to use with cord and three pin mains plug readily attached.

**Cat. T-1300**  
**SPARE TIP TO SUIT..... Cat. T-1301.....95¢**

**Matching Soldering Iron Stand**

The perfect answer when you want to put your hot soldering iron down is the Dick Smith stand. It is suitable for the Dick Smith iron (Cat. T-1300) or many other medium sized irons. It has a very stable cast base with screw holes for attaching to your workbench plus a strong coiled spring in which to place the iron. This protects not only the iron but you as well! A cleaning sponge for the soldering iron tip can be placed in the front tray.

**Cat. T-1302**  
 Spare sponge..... **Cat. T-1080.....\$1.30**



**LOW PRICES ON TOP NAME IRONS - YOU REAP THE BENEFIT!**

## Lightweight and easy-to-handle



**DICK SMITH**

Use with  
 12 volt min.  
 500mA  
 Transformer  
 (M2155  
 suitable)

Brand new last year and selling incredibly well, is this superb 12 volt AC or DC soldering iron. And when we say miniature, we mean MINIATURE!! Not much larger than a pencil in length and not much thicker either. What an ideal iron for those really small PC board jobs. It is so light and easy to handle that even the most inexperienced soldering fiend will be able to use it. It comes complete with lead & is rated at 6 watts which is ideal for all small component lead soldering. No more are you tied to a big lumbering old iron for those delicate jobs - just get the brand new Dick Smith miniature 12V iron.

**SPARE TIPS TO SUIT**

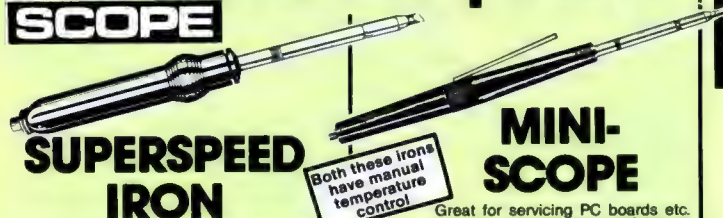
Wedge Copper Tip  
 Cat. T-1921 ..... **\$1.60**  
 Cone Copper Tip  
 Cat. T-1922 ..... **\$1.60**

**Incredible value**

**Cat. T-1920**

## Scope quality at affordable prices

**SCOPE**



**SUPERSPEED IRON**

This is the professional iron for those who are serious about soldering. It has a huge 150 watt capacity with features only found on the more expensive irons.

Thumb operated ring on the handle that supplies heat in 6 seconds! Delivers the right amount of heat at the right time. You can operate the scope from 3.3 volts AC or DC or from the special transformer. You can dictate the temperature and wattage to do your job.

Stainless steel non-corrosive barrel. Comes complete with spare tip and element. Great for any serviceman or hobbyist!

**Cat. T-1605**

**ONLY \$29.95**

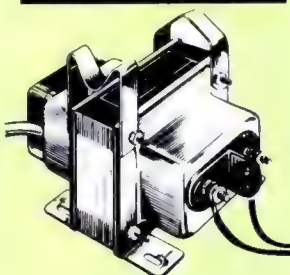
**MINI-SCOPE**

Great for servicing PC boards etc. Has all the advantages of bigger irons and it's small size makes it easier to handle. Finger tip control of wattage and tip temperature. Complete with spare tip and element.

**Cat. T-1660**

**GREAT VALUE \$34.50**

**SCOPE**



**Scope transformer**

The ideal transformer for the scope irons. Mounts on or under the bench. Can be used with any tool requiring around 3-4 volts AC. Completely safe. An earthed insulation shield prevents capacitive coupling with possible voltage leaks. Great for any hobbyist, serviceman, etc.

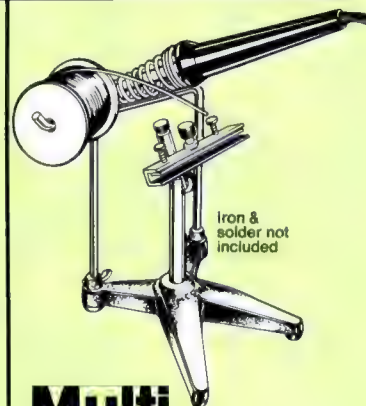
**HOLDS YOUR SOLDERING IRON TOO!**

**Cat. T-1692**

**GREAT VALUE \$23.95**

**SPARE TIPS**

Copper tips (standard)  
 ..... **T-1610 .....75¢**  
 Copper tips (instrument)  
 ..... **T-1612 .....75¢**



Iron & solder not included

**Multi purpose stand**

● Holds boards or components firmly in rubber faced vice ● Angle of vice may be varied widely in three dimensions for greatest accessibility to board ● Convenient soldering iron holder also adjustable ● Adjustable spool holder for solder & desoldering wick ● Ideal for the hobbyist or professional ● Leaves both hands free.

**Cat. T-5700**

**AMAZING VALUE \$24.50**



Stainless barrel.....	T-1616.....	\$12.25
Elements (carbon).....	T-1618.....	95¢
Bead retaining nut.....	T-1620.....	50¢
Bead ceramic.....	T-1622.....	35¢
Push rod assembly.....	T-1624.....	\$7.65
Return spring.....	T-1626.....	\$1.50
Flex lead.....	T-1628.....	\$11.95
Bakelite lock nut.....	T-1630.....	\$2.25
Brass nut.....	T-1632.....	\$1.95
Handle complete.....	T-1634.....	\$15.95
Switch ring.....	T-1636.....	\$2.65
Handle.....	T-1638.....	\$9.25
SW Ring.....	T-1639.....	\$1.35
Grommet.....	T-1640.....	\$2.65
Lock brush.....	T-1641.....	\$2.25



Copper tip.....	T-1662.....	\$1.10
Stainless barrel.....	T-1664.....	\$9.95
Elements.....	T-1666.....	95¢
Push rod assembly.....	T-1668.....	\$5.25
Insulating brush.....	T-1670.....	\$1.20
Switch return spring.....	T-1672.....	65¢
Contact lug.....	T-1674.....	\$1.15
Switch lever.....	T-1676.....	\$4.65
x head.....	T-1678.....	\$11.95
Handle (unslotted half).....	T-1680.....	\$3.95
Handle centre piece slotted.....	T-1682.....	\$1.65
Handle brass sleeve.....	T-1684.....	\$6.35
Ceramic bead.....	T-1686.....	35¢
Bead retaining nut.....	T-1688.....	35¢



# Quality Tools

Professional or hobbyist, you can't beat Dick Smith direct import Quality and Value



AND SAVE ON ACCESSORIES TOO

## Soldering Accessories

### Solder

Top quality corrosion free multicore solder.

1.25mm (18g) 200grams **ROLL**  
Cat. N-1619.....  
0.71mm (22g) 200 grams **ROLL**  
Cat. N-1623.....

A liberal amount of solder in a hobby pack.

1.25mm (18g) hobby pack  
Cat. N-1638.....  
0.71 (22g) hobby pack  
Cat. N-1636.....

### C/R Puller

Spring loaded 'third hand' for removing components from PC boards when the solder melts.

Cat. T-2600

### Soldering Set Aid

For the person working with PC boards this is an essential aid. Kit contains: guide fork tool, reamer point and knife point tool, scriber, heatsink clip and stainless steel bristle brush. Can also be used for restringing dials!

Cat. T-2610

### Heatsink Clip

Spring loaded, self holding clip with special alloy tips for rapid heat transfer from components.

Cat. T-2630

### Solder Sucker

A rugged, all metal construction solder sucker complete with Teflon tip and a nozzle sweeper as well. Light thumb release mechanism for the removal of solder from the board. Don't pay twice the price - a top quality import from Dick Smith.

Cat. T-2560 **\$43<sup>50</sup>**  
Spare Teflon tip to suit .....  
Cat. T-2565 ... \$2 00

### Desoldering Bulb

Simple and efficient. Simply squeeze bulb hold up to molten solder and release bulb. Solder is sucked straight up. Use for blow cooling tool!

Cat. T-2580

### Desoldering Braid

Known to one and all as the 'Dick Wick', this is a specially treated copper braid that is used to remove solder from the PC board by capillary action. Fast, clean and very efficient. Cut off the used bit of braid and you are ready to start again.

Cat. N-1682..... 1-9.....  
10 or more.....

### Heatsink Clip Set

Spring loaded, plier grip clips for heat sensitive components and leads. Made of aluminium for high thermal conductivity. 2 types, one straight and one angled, both 75mm long.

Cat. T-2620

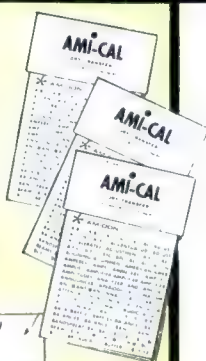
Pack of both

Give your project a professional lettering job

## Panel lettering

Each pack contains hundreds of words, letters, numbers and symbols for quick easy labelling of electronic equipment. These transfer sheets are easily applied by burnishing.

Size 1 (3.1mm high) Black lettering **\$6<sup>95</sup>**  
Cat. N-1800.....  
Size 2 (2.3mm high) Black lettering **\$5<sup>95</sup>**  
Cat. N-1804.....  
(2.3mm high) White lettering **\$6<sup>95</sup>**  
Cat. N-1806.....



## Dick Smith prices also on ADCOLA Irons.

### Adcola T30



Mains operated with solid state temperature sensing control and SCR used as electronic switch. Screwdriver temperature adjustment in handle. Ideal for solders and components requiring accurate temperature control, eliminates risk. Range 200 to 400 degrees Centigrade. Fitted with long life Armaciad tip.  
Cat. T-1810

TIPS TO SUIT ..... Cat. T-1850 .....

### Adcola 12 watt Iron S30



Reliable iron for general service or production area and ideal for the hobbyist. High impact orange plastic handle and complete with Tri-clad 3mm long life tip

Cat. T-1820

TIPS TO SUIT ..... Cat. T-1854

### Adcola 16 watt Iron S50



For those slightly heavier soldering jobs this Adcola is ideal. service work, assembly, etc. Has heavier element for more power (16 watts) and a larger long life Tri-clad 5mm tip. Thousands of Adcolas are used in electronics every day!  
Cat. T-1825

TIP TO SUIT: ..... Cat. T-1856 .....

## Quality Servicing Aids

### MATTE BLACK SPRAY PAINT

This is a quick drying matte finish spray. Suitable for giving your project that professional finish. Ideal for spraying heatsinks to increase thermal efficiency.

Cat. N-1070..... **\$2<sup>90</sup>**  
**ONLY \$2<sup>90</sup>**  
**A CAN** ~~\$3<sup>65</sup>~~

### ACRYLIC CLEAR SPRAY

This is a fine colourless spray that is ideal for the protection of front panels, etched screen print or Letraset lettering. Will moisture proof components, TV aerial terminations etc. 125 gram can

Cat. N-1011..... **\$2<sup>90</sup>**

### IDEAL FOR ARTISTS TOO

### CRC 2-26 SPRAY

This is a moisture removing, cleaning pressure pack. Not only does it clean, but it also leaves a film of protecting silicone that does not dry out. Ideal for pots, switches and contacts. Ideal for loosening stubborn nuts and bolts. Will protect your car from salt and moisture. Use it on the ignition systems to stop frustrations during wet weather starts. 450 gram can

Cat. N-1060 **\$5<sup>95</sup>**

### SPRAY CLEANER

This is a cleaner, degreaser, moisture removing spray. It is non-toxic, non-explosive, non-flammable. Can be used on rubbers or plastics as well. Leaves no residue, suitable for electronic & electrical components, computers, tape recorder heads and mechanisms, clocks and watches, jewellery - in fact even the most delicate equipment. Complete with long range nozzle

Cat. N-1051 ~~\$3<sup>00</sup>~~ **\$2<sup>90</sup>**

### ELECTROLUBE 2X LUBE PEN

This is the state of the art electro-mechanical lubricant. Packaged in pen form with pocket clip. The pack has a unique retractable tube system to reach into those inaccessible areas. Non-drying lubricant for use with electronic gear, automotive, office, and domestic equipment etc. Ideal for servicemen.

Cat. N-1047 **\$3<sup>85</sup>**



NEW  
FOR



## A range of directly imported stainless steel pliers of a quality we've sought for years!

Introducing our brand new range of stainless steel tools - without the normal stainless steel price tag! Every professional, every hobbyist needs the best tools to get the best job. But they used to cost a fortune - until Dick Smith's stainless steel tools came on the scene. Amazing value - they'll last far longer than other tools, are ultra precision made and resist corrosion!

Carefully chosen types for practical applications:

### S/S Transistor Nipper

Ideal for Printed Circuit Board work. Very sharp with a long life cutting edge. Great for trimming of those big jobs on Printed circuit boards.

Cat. T-3205

### S/S Mini Flat Nose Pliers

Great for work on printed circuit boards. Use it as a heat sink while soldering - the wide nose draws away a lot of heat.

Cat. T-3325

### S/S Mini Needle Nose Plier

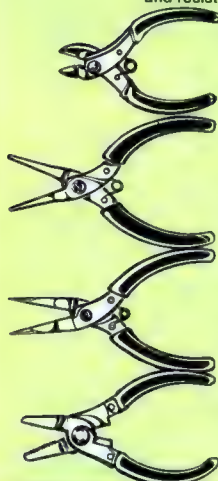
Ideal for work with small components like DS549's etc. Get into those small spaces where bigger tools don't fit.

Cat. T-3570

### S/S Mini Long Nose Plier

Great for getting into those tight spots for pulling out components. Work with these pliers in 'Birdnests' etc.

Cat. T-3565



## & you save

### SPRAY FREEZER

Instantly freezes components down to minus 50 degrees Celsius! Ideal for servicing electrical & electronic equipment with intermittent problems. Also shrinks shafts, bushes, etc; cools components while soldering. Complete with long reach tube. 350g spray can.

Cat. N-1056

**\$2.90**

### CIRCUIT LACQUER

This is a specially formulated spray for the protection of PC boards. This is a solder thru lacquer so boards previously sprayed with PCL-2 can be soldered in service. Pressure pack can 397 grams.

Cat. N-1045

**\$7.95**

### ELECTRONIC CLEANING SOLVENT

A highly efficient, high pressure solvent highly recommended for cleaning tuners, switches, plugs and sockets, commutators, potentiometers, relays, etc. Non-corrosive, low toxicity. Complete with long tube. 340 gram pressure pack can.

Cat. N-1040

**\$5.75**

### DICK SMITH PVC TAPE

Top quality PVC tape. 18 metres long x 19mm wide x 0.2mm thick. Hundreds of uses.

Cat. N-1362

**70¢**

### HEAT SINK COMPOUND

This heat transfer compound is applied to the base and mounting studs of transistors and diodes. It is also an effective thermal coupler for any heat sink device where efficient cooling is required.

Cat. N-1205

**\$1.70**

### SILASTIC

ADHESIVE/SEALANT

Adheres to metals, glass, paint, ceramics, most plastics and wood. Ideal for mending leaks in fish tanks, roof tiles, wind screens etc. General purpose one part silicone rubber.

Cat. N-1225

**\$4.00**

### SUPER GLUE

No clamping required, no mixing, no mess. Sets in seconds. Has thousands of applications.

Cat. N-1220

**\$2.55**



### Mini Diagonal Cutting Nipper

Drop forged steel construction. Cutting edge tempered and honed. Chrome plated finish with soft plastic handles. Length 100mm.

Cat. T-3561

**\$4.45**



### Long Nose Plier

This tool has a fine tip and serrated jaw for general use. Built-in cutting edge, chrome plated with insulated handles. Length 125mm, jaws 40mm.

Cat. T-3250

**VALUE \$6.75**



### Cutting Nipper/Stripper

This nipper/stripper has sturdy insulated handles and a positive cutting edge. It features two very handy wire stripping holes, one of 1.2mm and the other 1.6mm making it a very versatile tool. Length 125mm, cutting edge 22mm

Cat. T-3220

**\$6.95**



### Side Cutting Plier

This is a hard working tool for linesmen, electricians and general purpose use. Made of sturdy gunmetal with a polished finished and insulated handles. Has flat serrated jaws with built-in cutting edge. They represent excellent value. Length 150mm, jaws 25mm.

Cat. T-3270

**ONLY \$6.95**

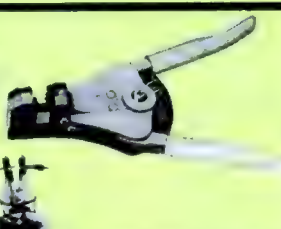


### Deluxe Wire Stripper

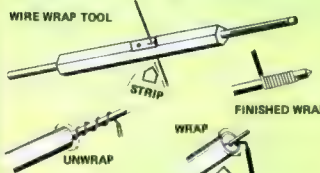
This is a completely automatic wire stripper. Only one hand operation is required to complete stripping operation. The multiple sized head allows a wide range of wire from 1mm to 3.2mm to be stripped. Ideal unit for servicemen, TV technicians, hobbyists etc.

Cat. T-3620

**ONLY \$12.50**



### Wire Wrap Tool



A tool well suited to the needs of the hobbyists and experimenters in the electronic field. Ideal for '1 off' production where the total number of wrap actions doesn't warrant the use of an automatic machine. Very simple to use, a versatile 3-in-1 tool. It strips back the insulation, wraps and unwraps. Precision made for continuous use.

Cat. T-3650

**\$8.85**

### Economy Wire Stripper

Large adjustable range. Hardened jaws will last a long, long time. Great value at around half the price of other makes

Cat. T-3630

**\$2.65**



### Tullen Snips

Famous Tullen snips will cut virtually anything! From metal to paper, from carpet to lino and it does it with so much ease. Plastic covered handles with parking lock to keep the blades together - Never needs sharpening.

Cat. T-4930

**VALUE \$3.45**



### Deluxe Pin Vise

If you wish to hold a component like you would in a vice - then do it with this deluxe pin vise. It has a chrome finish and comes complete with 2 double ended hardened steel chucks to hold items up to 3mm in diameter.

Cat. T-5115

**\$6.50**



### Lug Crimping Tool

Versatile crimping tool will also strip and cut wire. Great value at around half the price of wire. Complete with a pack of lugs ready to use. Great value and a great addition to your workshop

Cat. T-3520

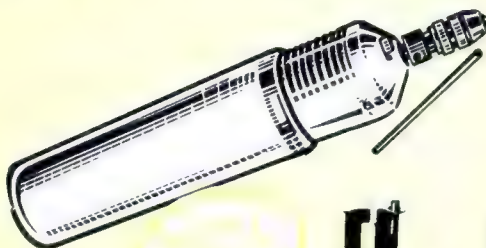
**ONLY \$2.40**





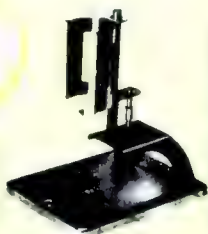
# Quality Tools

## DICK SMITH Mini PC Drill



Mini PC drill is directly imported by Dick Smith Electronics. Although the drill is very small in size, the output is excellent for PC board work. It is completely self contained and runs off 2 'C' cells. The drill is extremely easy to use as the on/off switch is in a very convenient position. Because there are no trailing wires it makes work on PC boards, jewellery, model making, craft work etc. very easy indeed.

**SPECIFICATIONS:** Powered by 2 x 'C' cells. Size is 34mm x 152mm. Width: 98 grams. Speed: 6,000RPM. Drill size capability 0.8 - 1.2mm and it comes complete with 1.2mm drill and chuck tommy bar. Batteries are not supplied (see battery section for prices.)  
Cat T-4750



### Stand to Suit

A convenient stand to suit the Mini PC Drill - designed to make tasks easier. Cat T-4752

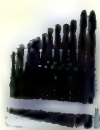
**\$13<sup>50</sup>**

VALUE AT **\$18<sup>95</sup>**

## Drills

**MINIATURE HIGH SPEED TWIST DRILLS**  
Suitable for PC Board work.

Cat T-4820	No. 60 (1.0mm)	<b>14<sup>30</sup></b>
Cat T-4825	No. 65 (0.8mm)	<b>14<sup>30</sup></b>



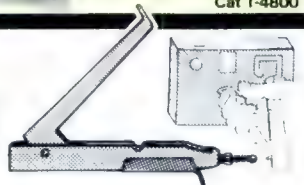
## 13PC Drill Set

An easy to use snap case holds 13 drills from 1/16" to 1/4" in quality chrome vanadium. Suitable for metal, wood, plastics etc.  
Cat T-4800

**\$5<sup>25</sup>**

## Nibbling Tool

A unit that can cut any shape opening in sheet steel to 0.6mm thick or light alloy to 1.5mm. Ideal for plastics too. Easy to use, gives good clean cut without distortion. Follows curved or straight lines with ease. Put one in your tool box today!  
Cat T-4940



value **\$13<sup>95</sup>**

## Hole Punch Set



Ideal chassis basher tool, in fact a necessary tool for anyone who needs a large hole cut through metal. It's easy to use, needs no filing and it will cut a hole without distortion. The complete set includes a 12mm tapered reamer, tommy bar, 5 punches - 16mm, 18mm, 20mm, 25mm, and 30mm. Individual chassis punches bought separately would cost a lot more than the price being charged for the whole set! Will handle steel to 22 gauge and aluminium to 16 gauge.  
Cat T-4900

**\$16<sup>00</sup>**

## Tapered Reamer

An ideal tool for enlarging holes in thin metal, plastics, wood etc. Great idea for chassis bashers, hobbyists, servicemen. Made from the highest quality heat treated steel, comes complete with tommy bar. Tapers from 4mm to 22mm.  
Cat T-4920



**\$3<sup>95</sup>**

## Dalo Marking Pen

Essential for precision marking of boards prior to etching. Unique press-to-mark feature enables adequate dye when marking the board. Cat T-5170



**\$1<sup>75</sup>**

## PC Marking Kit

The T-5175 PC Marking Kit contains two colour pens for easy identification of circuits and an eraser. The pens are for direct use on PC board copper foil.  
Cat T-5175



ONLY **\$4<sup>25</sup>**

## DELUXE Tool/Workbox

Just what the hobbyist wants most: a place to put all those bits and pieces you'd normally spend hours searching for! This high quality tool box is made from tough impact resistant plastic, and opens up to reveal two elevated trays to hold small tools, components, etc. Underneath is a large storage area big enough for soldering irons, pliers, screwdrivers, and even a small hammer. You'd be amazed just how much this will hold! But its more than just a tool box for hobbyists: buy one for mum for a sewing box. Or another for yourself for fishing tackle. Or even (as we do in the advertising department at DSE) hold artist's materials: they're just right for a 380mm ruler! Lid has a carry handle fitted, and the box can be padlocked for security when closed. Overall size (closed) is 430 x 230 x 200mm.  
Cat H-2600

★ SEWING ★ TECHNICIANS  
★ ARTISTS ★ HOBBYISTS  
★ ETC! ★ FISHERMEN

AND ONLY **\$32<sup>50</sup>**

## 20 Piece Metric Utility Set

This set has to be seen to be believed. 20 piece nickel chrome molybdenum steel with chrome plated handle presented in a handy transparent plastic box. The set includes:

3 x blade screwdrivers: 1.5, 2.5, 3.5mm. 2 x Philips screwdrivers. No. 1 and No. 0. 3 x hex Allen keys: 1.5, 2.0, 2.5mm. 5 x open end spanners: 4, 4.5, 5.0, 6.0mm. 5 x spiritlights: 3.0, 3.5, 4.0, 4.5, 5.0mm, tommy bar, 1 awl, 1 handle assembly. You will be proud to have this excellent quality set in your tool range. Great value for money!  
Cat T-4365



**\$8<sup>50</sup>**

## Combination Tool Set

A five piece set consisting of: 1 precision jewellers screwdriver, 1 baby blade screwdriver, 1 x 5/32" nut spigot, 1 x 1/4" nut spigot. A handyman's kit presented in a handsome vinyl case.  
Cat T-4340



**\$3<sup>45</sup>**

## Allen key set

**\$1<sup>65</sup>**

Allen screws always turn up when you least expect them to! So here's an ideal set for the workshop. 7, gunmetal finish Allen keys in a plastic wallet. Sizes 1.4mm, 1.5mm, 2mm, 2.4mm, 2.5mm, 3mm, 4mm. They are ideal for most European and Japanese equipment that have Allen screws. Cat T-5080



## Adjustable blade trimming knife

A comfortable hand knife you'd have to pay more for elsewhere! Our low price doesn't affect high quality. Comes complete with 5 surgically sharp carbon steel blades.  
Cat T-5220



**\$2<sup>35</sup>**

## IC Insertion Tool

How many times have you damaged expensive IC's simply because you couldn't place them properly in the PC board? Well your troubles are over with this superb IC insertion tool. It will handle all DIL package IC's with ease and will take the frustration out of IC insertion.  
Cat T-4840



**\$5<sup>25</sup>**

## Steel Rule

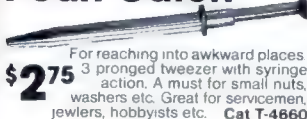
300mm hardened spring steel with deep etched black graduations. Non-rusting, complete with plastic sheath. Cat T-5145



**\$2<sup>80</sup>**

## Pearl Catch

For reaching into awkward places. 3 pronged tweezer with syringe action. A must for small nuts, washers etc. Great for servicemen, jewellers, hobbyists etc. Cat T-4660



**\$2<sup>75</sup>**

## Scissor Clamps

Made of stainless steel with screw joint. These scissor clamps are 127mm long so they will reach hard to get at places. They can be used as a third hand for small items as they can be locked on to the article they are holding.  
Cat T-3690



VALUE **\$6<sup>20</sup>**

## Pointed Tweezer

Great for holding small nuts, components and delicate instruments, wires etc. Also great for removing ticks! Fine points.  
Cat T-4620



**\$1<sup>00</sup>**

## Serrated Jaw Tweezer

Has flat serrated jaw for positive grip.  
Cat T-4630



**\$1<sup>00</sup>**

## Needle File Set

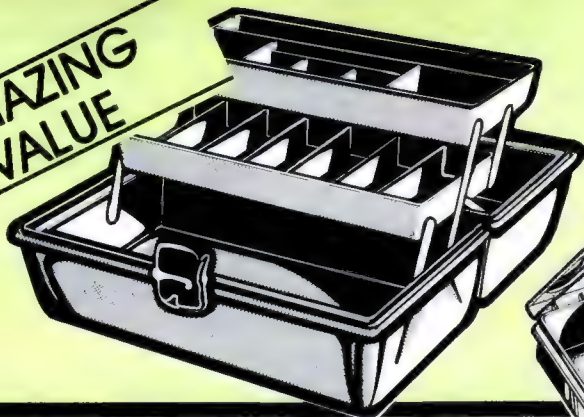
This handy set of files has five different types, all 185mm in length. The types are round, square, halfmoon, triangular & rectangular.  
Cat T-4980



**\$7<sup>95</sup>**



**AMAZING  
VALUE**



Keep'em neat with these  
quality compartment cases

## Adjustable Utility Box

This durable lightweight utility box is a must for fishermen, hobbyists, artists or the technician. Great for keeping those loose odds and ends in order. Compartments can be adjusted to suit your own needs. Dimensions: 285(w) x 40(h) x 170(d)mm.  
Cat. H-2592

- Positive snap closing lid
- No metal parts to rust
- Clear sight of contents
- Over thirty partition combinations
- Rigid and robust construction

only  
**\$6<sup>20</sup>**

## Screwdrivers

This range of screwdrivers has been chosen because it represents many different types of applications. Depending upon type you can work on the most delicate of instruments up to motor vehicles. They are made of virtually unbreakable, flame and shock resistant high impact plastic. This applies to the 45, 41, 61, 71, 81 and 82 series of screwdrivers. CODE: L-Blade length, D-Blade width, H-handle length x diameter.

### Mini Drivers (Series 45)



This really is a miniature screwdriver! Ideal for small jobs like the magnetic cartridge in your turntable, jewelry etc. Yes they are that small!  
L-30mm, D-1.6mm, H-25mm x 7mm  
Cat. T-4010 ..... **FLAT BLADE** ..... 50c  
Cat. T-4020 ..... **PHILIPS** ..... 80c

### Neon Tester Screwdriver

1,000's  
SOLD!



Very handy little item to have around: it's a standard flat blade screwdriver, but inside is a neon indicator to warn you of dangerous voltages. Operates from about 90 volts (AC or DC). Ideal for anyone working with mains circuits. A life saver!  
Cat. T-4005

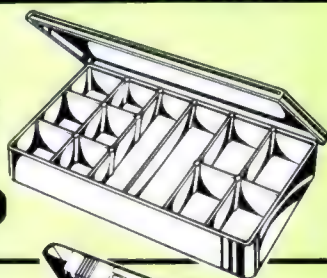
**\$1<sup>20</sup>**

## Utility Box

Small heavy duty plastic box with compartments for small items such as screws, resistors, capacitors etc. Dimensions: 218(L) x 110(W) x 33(H)mm.  
Cat. H-2590

**Amazing  
Value**

only  
**\$3<sup>60</sup>**



## Parts/Components Cases

Made of extremely strong plastic these are the most versatile parts cases we've seen to date! Available with movable compartment holders to allow storage of a huge range of parts and components of different sizes. The clear lid allows you to see at a glance what stock you have without lifting the lid. Sliding catches ensure that the lid stays closed. The lid is hinged by steel pins for a long life case. Adhesive compartment labels for a clear identification system. Ideal for the serviceman, the hobbyist, the housewife etc.

290(L) x 220(W) x 45(D)mm - has two tiers of trays and one extra deep tray.



only  
**\$19<sup>95</sup>**

Cat. H-2596

### Stubby Drivers (Series 41)



These are really great for confined spaces or for a job that needs a bit more leverage than you would get with a slimmer handled screwdriver  
L-45mm, D-6.3mm, H-45mm x 30mm  
Cat. T-4060 ..... **FLAT BLADE** ..... \$1.55  
Cat. T-4065 ..... **PHILIPS** ..... \$1.55

### Popular (Series 71)



This has been voted the most used size. The medium size makes them ideal for general purpose work.  
D-4.5mm, H-73mm x 16mm  
Cat. T-4085 ..... L-75mm ..... 80c  
Cat. T-4090 ..... L-150mm ..... \$1.00

### Baby Drivers (Series 61)



This range is ideal for light electronic work.  
D-2.6mm, H-49mm x 11mm  
Cat. T-4070 ..... L-50mm ..... 50c  
Cat. T-4075 ..... L-100mm ..... 70c  
Cat. T-4080 ..... L-200mm ..... 80c

### Heavy Drivers



This series is ideal for the tradesman. The heavy duty makes them useful in the automotive workshop, machine shop etc.  
L-75mm, D-5.5mm, H-90 x 19mm  
Cat. T-4095 ..... \$1.25  
L-125mm, D-6mm, H-90mm x 25mm  
Cat. T-4100 ..... \$1.75

### Philips (Series 82)



This series covers all of the most popular Philips screw sizes.  
L-75mm, D-3mm, H-54mm x 12mm  
Cat. T-4030 ..... 70c  
L-100mm, D-4mm, H-75mm x 15mm  
Cat. T-4040 ..... 95c  
L-125mm, D-5mm, H-85mm x 18mm  
Cat. T-4050 ..... \$1.55

### 6 Piece Jewellers Set

only  
**\$3<sup>95</sup>**



These are beautifully made screwdrivers, chrome plated body with a free running knob on the top. The blades are the finest quality nickel chrome molybdenum steel, precision ground. They are presented in a handy transparent moulded case. Sizes range from 0.8mm to 3.8mm.  
Cat. T-4350 ..... \$3.95

### 6 Piece Precision Set

only  
**\$4<sup>50</sup>**



These chrome plated screwdrivers are presented in a plastic storage case. A free running top on each driver gives operator ease of use. The set consists of 4 blade drivers from 1.4mm to 2.9mm and 2 Philips screwdrivers, No. 0 and No. 1. These are quality screwdrivers at a low price and a very handy set to have around.  
Cat. T-4360

### TV Alignment Kit



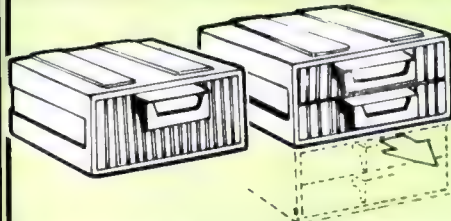
A versatile set of four general purpose tools to cover all shapes & sizes of cores. They are made from tough plastic.  
Cat. T-4540 ..... \$3.20

### Screwdriver Type



Ideal for the handyman & TV technician this plastic screwdriver has a steel spring tip. Suitable for trimmers and mini IF's.  
Cat. T-4510 ..... 100mm ..... \$1.20  
Cat. T-4520 ..... 200mm ..... \$1.20

## Parts Drawers The Stackable System

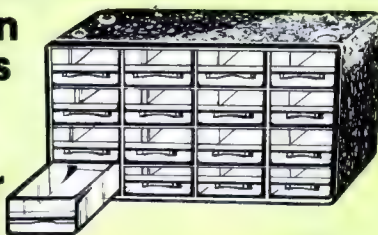


Over the years we have seen many types of component drawers come and go - we have sold units that have been like that - BUT these drawers go on because they are so popular. Large handle on the front of each drawer. Special index card slot moulded into the handle for labelling. Outside the boxes have precision dovetail ways so that the boxes may be securely locked together. Wall or bench mountable. These trays will not seize inside the box as others tend to. Finished in white high impact plastic with the drawers moulded in red. Overall box dimensions (both types) - 114(w) x 57(h) x 130(d)mm

TWO TYPES AVAILABLE

Cat. H-2584 ..... one drawer per box ..... \$2.85  
Cat. H-2585 ..... two drawers per box ..... \$2.85

Why not clean  
out those jars  
of bits and  
pieces into  
usable order



only  
**\$14<sup>95</sup>**

It is much easier to find those small bits and pieces when they are in one location. This cabinet of drawers is ideal for small components, screws, nuts, and bolts plus other items around the house that need tidying up!

- **ECONOMICAL** - bulk buying reduces the cost to you
- **STACKABLE** - raised nngs prevent slip
- **COMPACT** - ideal for the work bench
- **CLEARVIEW DRAWERS** - see at a glance what they contain
- **USEFUL SIZE** - each drawer may be divided into a maximum of four compartments - one divider per drawer is supplied
- **16 DRAWER UNIT** - a total of 16 drawers each 65(w) x 137(l) x 35(d)mm
- **CABINET SIZE** - 300(w) x 180(h) x 140(d)mm.  
Cat. H-2588 ..... 16 drawer unit



# Resistors & Pots

Using your 'easy find' resistor table . . .

Simply follow the 'value' column down on either side until you find the particular value you require, and then run across to the column headed by the type of resistor (e.g. metal film, 1W carbon film, etc). That's the catalogue number of your resistor!

VALUE IN OHMS	1/4W Metal Film 7% each 100 or more 5% each	1/4W Carbon Film 5% each 100 or more 4% each	1/2W Carbon Film 6% each 100 or more 4% each	1W Carbon Film 9% each 100 or more 7% each	5W Wire Wound 50% each 10 or more 35% each	VALUE IN OHMS
0.1					R-1600	0.1
0.47					R-1601	0.47
1.0		R-1002	R-1202	R-1402	R-1602	1.0
1.2		R-1004	R-1204	R-1404	R-1604	1.2
1.5		R-1006	R-1206	R-1406	R-1606	1.5
1.8		R-1008	R-1208	R-1408		1.8
2.2		R-1010	R-1210	R-1410	R-1610	2.2
2.7		R-1012	R-1212	R-1412		2.7
3.3		R-1014	R-1214	R-1414	R-1614	3.3
3.9		R-1016	R-1216	R-1416		3.9
4.7		R-1018	R-1218	R-1418	R-1618	4.7
5.6		R-1020	R-1220	R-1420	R-1620	5.6
6.8		R-1022	R-1222	R-1422	R-1622	6.8
8.2		R-1024	R-1224	R-1424	R-1624	8.2
10	R-0526	R-1026	R-1226	R-1426	R-1626	10
12	R-0528	R-1028	R-1228	R-1428	R-1628	12
15	R-0530	R-1030	R-1230	R-1430	R-1630	15
18	R-0532	R-1032	R-1232	R-1432	R-1632	18
22	R-0534	R-1034	R-1234	R-1434	R-1634	22
27	R-0536	R-1036	R-1236	R-1436	R-1636	27
33	R-0538	R-1038	R-1238	R-1438	R-1638	33
39	R-0540	R-1040	R-1240	R-1440	R-1640	39
47	R-0542	R-1042	R-1242	R-1442	R-1642	47
56	R-0544	R-1044	R-1244	R-1444	R-1644	56
68	R-0546	R-1046	R-1246	R-1446	R-1646	68
82	R-0548	R-1048	R-1248	R-1448	R-1648	82
100	R-0550	R-1050	R-1250	R-1450	R-1650	100
120	R-0552	R-1052	R-1252	R-1452	R-1652	120
150	R-0554	R-1054	R-1254	R-1454	R-1654	150
180	R-0556	R-1056	R-1256	R-1456	R-1656	180
220	R-0558	R-1058	R-1258	R-1458	R-1658	220
270	R-0560	R-1060	R-1260	R-1460	R-1660	270
330	R-0562	R-1062	R-1262	R-1462	R-1662	330
390	R-0564	R-1064	R-1264	R-1464	R-1664	390
470	R-0566	R-1066	R-1266	R-1466	R-1666	470
560	R-0568	R-1068	R-1268	R-1468	R-1668	560
680	R-0570	R-1070	R-1270	R-1470	R-1670	680
820	R-0572	R-1072	R-1272	R-1472	R-1672	820
1k	R-0574	R-1074	R-1274	R-1474	R-1674	1k
1.2k	R-0576	R-1076	R-1276	R-1476	R-1676	1.2k
1.5k	R-0578	R-1078	R-1278	R-1478	R-1678	1.5k
1.8k	R-0580	R-1080	R-1280	R-1480	R-1680	1.8k
2.2k	R-0582	R-1082	R-1282	R-1482	R-1682	2.2k
2.7k	R-0584	R-1084	R-1284	R-1484	R-1684	2.7k
3.3k	R-0586	R-1086	R-1286	R-1486	R-1686	3.3k
3.9k	R-0588	R-1088	R-1288	R-1488	R-1688	3.9k
4.7k	R-0590	R-1090	R-1290	R-1490	R-1689	4.7k
5.6k	R-0592	R-1092	R-1292	R-1492		5.6k
6.8k	R-0594	R-1094	R-1294	R-1494		6.8k
8.2k	R-0596	R-1096	R-1296	R-1496		8.2k
10k	R-0598	R-1098	R-1298	R-1498		10k
12k	R-0600	R-1100	R-1300	R-1500		12k
15k	R-0602	R-1102	R-1302	R-1502		15k
18k	R-0604	R-1104	R-1304	R-1504		18k
22k	R-0606	R-1106	R-1306	R-1506		22k
27k	R-0608	R-1108	R-1308	R-1508		27k
33k	R-0612	R-1112	R-1312	R-1512		33k
39k	R-0614	R-1114	R-1314	R-1514		39k
47k	R-0616	R-1116	R-1316	R-1516		47k
56k	R-0618	R-1118	R-1318	R-1518		56k
68k	R-0620	R-1120	R-1320	R-1520		68k
82k	R-0622	R-1122	R-1322	R-1522		82k
100k	R-0624	R-1124	R-1324	R-1524		100k
120k	R-0626	R-1126	R-1326	R-1526		120k
150k	R-0628	R-1128	R-1328	R-1528		150k
180k	R-0630	R-1130	R-1330	R-1530		180k
220k	R-0632	R-1132	R-1332	R-1532		220k
270k	R-0634	R-1134	R-1334	R-1534		270k
330k	R-0636	R-1136	R-1336	R-1536		330k
390k	R-0638	R-1138	R-1338	R-1538		390k
470k	R-0640	R-1140	R-1340	R-1540		470k
560k	R-0642	R-1142	R-1342	R-1542		560k
680k	R-0644	R-1144	R-1344	R-1544		680k
820k	R-0646	R-1146	R-1346	R-1546		820k
1M	R-0648	R-1148	R-1348	R-1548		1M
1.2M		R-1150	R-1350	R-1550		1.2M
1.5M		R-1152	R-1352	R-1552		1.5M
1.8M		R-1154	R-1354	R-1554		1.8M
2.2M		R-1156	R-1356	R-1556		2.2M
2.7M		R-1158	R-1358	R-1558		2.7M
3.3M		R-1160	R-1360	R-1560		3.3M
3.9M		R-1162	R-1362	R-1562		3.9M
4.7M		R-1164	R-1364	R-1564		4.7M
5.6M		R-1166	R-1366	R-1566		5.6M
6.8M		R-1168	R-1368	R-1568		6.8M
8.2M		R-1170	R-1370	R-1570		8.2M
10M		R-1172	R-1372	R-1572		10M

**PLEASE NOTE:**  
The 100-up price shown for all these resistors is for 100 of the same type and value. Resistors can NOT be mixed to obtain a 100-up price.  
Refer to our bulk packs (on page 129) for mixed value resistors at huge savings!

## Single Rotary Pots 95¢ ea (10 up 85¢ ea)



### LINEAR

500	R-8802	50k	R-8809
1k	R-8803	100k	R-8810
5k	R-8805	500k	R-8812
10k	R-8806	1M	R-8813
20k	R-8807	2M	R-8814

### LOG

1k	R-8817	100k	R-8824
5k	R-8819	500k	R-8826
10k	R-8820	1M	R-8828
20k	R-8821	2M	R-8829
50k	R-8823		

## Single Rotary Switch Pots (log only) \$2.00 each (10 up \$1.70 each)



1k	R-8878	100k	R-8884
5k	R-8879	500k	R-8886
10k	R-8879	1M	R-8888
50k	R-8882		

## Dual Rotary Pots \$1.90 each (10 up \$1.70 ea)



### LINEAR

10k	R-8834	500k	R-8842
20k	R-8836	1M	R-8843
50k	R-8838	2M	R-8844
100k	R-8840		

### LOG

10k	R-8849	500k	R-8857
20k	R-8851	1M	R-8858
50k	R-8853	2M	R-8859
100k	R-8855		

## Wire Wound Pots \$2.95 each (10 up \$2.70 ea) Rated at 3 watts



5 ohms	R-8901	100	R-8909	1k	R-8915	5k	R-8921
10	R-8903	200	R-8911	2k	R-8917	7.5k	R-8923
25	R-8905	500	R-8913	3k	R-8919	10k	R-8925
50	R-8907						

## Mini Vertical Trimpots 40¢ each (10 up 35¢ ea)



100	R-1829	2k	R-1837	50k	R-1845	1M	R-1853
200	R-1831	5k	R-1839	100k	R-1847	2M	R-1854
500	R-1833	10k	R-1841	200k	R-1849		
1k	R-1835	20k	R-1843	500k	R-1851		

## Large Vertical Trimpots 45¢ each (10 up 40¢ ea)



100	R-1856	2k	R-1860	50k	R-1864	1M	R-1868
200	R-1857	5k	R-1861	100k	R-1865	2M	R-1869
500	R-1858	10k	R-1862	200k	R-1866		
1k	R-1859	20k	R-1863	500k	R-1867		

## 10 turn Trimpots \$2.60 ea (10 up \$2.40 ea)



A multi-turn pot as used in a huge variety of test gear, precision equipment, etc. Very well made, 10 turns from end to end

1k	R-1900
10k	R-1901
20k	R-1902
50k	R-1903

## Replacements pots for transistor radios, etc

### Miniature screw-mounted type



Ideal for use as a replacement type in small radios, etc. Thumbwheel adjust type, screw mounted. Complete with on/off switch, resistance 5k ohms Cat R-1971

### Miniature Rotary type



As used in larger radios, cassette, etc. With 25mm long fluted shaft and on/off switch. Grab some for the junk box! (Also ideal for general use, res. 5k) Cat R-1974

65¢ ea (10 up 55¢ ea)

85¢ ea (10 up 75¢ ea)

## Joystick pot \$3.75 ea



Assembly complete with 2x 100k linear pots with paddle movement allowed in all directions. Great for radio control, TV & computer games, music synthesizers, X/Y analog displays, etc. Still \$1 cheaper than 4 years ago! Cat R-1976

## 50k Slider Pot 95¢ ea



As used in Playmaster Graphic Equalizer. Quality 50k linear pot, 73mm length, 45mm overall travel. Special knobs are available to suit (see knobs page) Cat R-1980

(10 up price 45¢ ea)

## You should switch to METAL FILM RESISTORS . . .

### Why metal film?

They're the professional resistor made to meet today's exacting electronics standards. Metal film resistors offer several advantages over carbon types:

- 1% tolerance
- Very high stability
- Very low temperature coefficient
- Very high reliability (made for rugged environments)
- Professional quality
- And the best part of all: they cost just one cent more than carbon types!

And you can buy bulk packs of metal film resistors at huge savings: see our computer selected bulk packs on page 129.



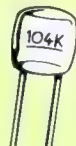
# Capacitors

## Polyester

Often called 'greencaps' because they're very often green in colour. Polyester capacitors are the most widely used of all types, in a huge variety of circuit applications. These polyester types are all rated at 100V or more. See data section for marking codes used.

Value in uF Cat No Price 1-9 Price 10 up

0.001	R-2010	25¢	20¢
0.0012	R-2012	25¢	20¢
0.0015	R-2015	25¢	20¢
0.0018	R-2018	25¢	20¢
0.0022	R-2020	25¢	20¢
0.0025	R-2025	25¢	20¢
0.0027	R-2027	25¢	20¢
0.0039	R-2030	25¢	20¢
0.0047	R-2035	25¢	20¢
0.0056	R-2040	25¢	20¢
0.0068	R-2045	25¢	20¢
0.0082	R-2050	25¢	20¢
0.01	R-2055	25¢	20¢
0.012	R-2057	25¢	20¢
0.015	R-2060	25¢	20¢
0.018	R-2062	25¢	20¢
0.022	R-2065	25¢	20¢
0.027	R-2067	25¢	20¢
0.033	R-2070	25¢	20¢
0.039	R-2075	25¢	20¢
0.047	R-2080	25¢	20¢
0.056	R-2085	25¢	20¢
0.068	R-2090	25¢	20¢
0.082	R-2095	25¢	20¢
0.1	R-2100	28¢	23¢
0.12	R-2102	28¢	23¢
0.15	R-2105	28¢	23¢
0.18	R-2107	28¢	23¢
0.22	R-2110	28¢	23¢
0.27	R-2115	35¢	30¢
0.33	R-2120	35¢	30¢
0.39	R-2125	39¢	34¢
0.47	R-2130	49¢	38¢
1.0	R-2135	\$1.25	\$1.15
2.0	R-2140	\$1.25	\$1.15
3.3	R-2145	\$2.50	\$2.02



## High Voltage Polyester

Similar to above range, but offering a very high voltage rating: 630 volts! Ideal replacements for most capacitors used in valve circuits.

Value in uF Cat No Price 1-9 Price 10 up

0.01	R-2160	28¢	23¢
0.022	R-2162	35¢	30¢
0.033uF	R-2164	39¢	36¢
0.047	R-2166	39¢	36¢
0.1	R-2170	55¢	50¢
0.22	R-2172	85¢	70¢
0.33	R-2174	95¢	80¢
0.47	R-2176	\$1.05	90¢

## Polystyrene

With a low temperature coefficient and very high voltage rating, polystyrene capacitors are ideal for use where stability and voltage rating is important.

Value	Cat No		
33pF	R-2807	220pF	R-2827
39pF	R-2809	270pF	R-2829
47pF	R-2811	330pF	R-2831
56pF	R-2813	390pF	R-2833
68pF	R-2815	470pF	R-2835
82pF	R-2817	560pF	R-2837
100pF	R-2819	680pF	R-2839
120pF	R-2821	820pF	R-2841
150pF	R-2823	1000pF	R-2843
180pF	R-2825		

All polystyrene one price: 1-9 40¢ 10 up 35¢

## High Voltage Polycarbonate

Specifically intended for mains and other suppression applications, these capacitors are rated at 250 volts AC continuous.

Value	Voltage	Cat No	Price 1-9	Price 10 up
0.001uF	250V AC	R-2740	80¢	75¢
0.01uF	250V AC	R-2730	70¢	65¢
0.1uF	250V AC	R-2720	\$1.20	\$1.00



## High Discharge (Strobe) Capacitor

Used in circuits such as photographic strobes or flashes where heavy discharge currents occur. Rated at 250 volts AC with discharge resistor built in.

6.5uF 250V AC \$3.95 ea Cat R-2855

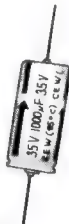


## PREFERRED VALUES:

Most capacitors are supplied in 'preferred values'; however some - particularly electrolytics - are not. (For example, 640uF where you might expect 560 or 680uF). If you have a circuit specifying a particular value electrolytic and the one you're supplied is not the exact value, it is normally quite safe to use it. Electrolytics usually have a very wide tolerance anyway, so if you get stuck you'll probably find a value either direction will work just as well!

Electrolytics come in a range of different shapes and sizes but (with the exception of the bipolar type below) they have one thing in common: they are polarised and must be connected into circuit correctly. As you will note, very large capacitances are possible with electrolytic types.

Value in uF	Voltage	Cat No	Price 1-9	Price 10 up
0.47	63	R-4010	30¢	25¢
1.0	350	R-4015	30¢	25¢
2.2	63	R-4020	30¢	25¢
3.3	25	R-4025	30¢	25¢
4.7	25	R-4030	30¢	25¢
4.7	63	R-4035	30¢	25¢
4.7	500	R-4045	60¢	55¢
8	500	R-4050	85¢	80¢
10	16	R-4055	30¢	25¢
10	25	R-4060	30¢	25¢
10	63	R-4065	30¢	25¢
16	500	R-4070	\$1.15	\$1.10
24	500	R-4080	\$1.15	\$1.10
25	25	R-4085	30¢	25¢
25	63	R-4090	35¢	33¢
33	500	R-4100	\$1.50	\$1.30
47	16	R-4105	30¢	25¢
47	25	R-4110	35¢	30¢
47	63	R-4115	40¢	35¢
47	350	R-4120	\$1.30	\$1.10
100	10	R-4125	40¢	35¢
100	25	R-4130	40¢	35¢
100	63	R-4135	45¢	42¢
100	350	R-4140	\$2.40	\$2.00
220	16	R-4145	55¢	50¢
220	25	R-4150	90¢	80¢
220	63	R-4155	95¢	85¢
470	16	R-4160	80¢	75¢
470	63	R-4165	\$1.30	\$1.00
640	16	R-4170	85¢	75¢
1000	16	R-4175	95¢	85¢
1000	25	R-4180	\$1.10	\$1.00
1000	35	R-4185	\$1.30	\$1.20
1000	63	R-4190	\$1.75	\$1.55
2500	16	R-4195	\$1.20	\$1.10
2500	25	R-4200	\$1.70	\$1.50
2500	35	R-4205	\$1.95	\$1.80
2500	50	R-4210	\$2.40	\$2.30
4700	35	R-4215	\$2.75	\$2.55



2.2	25	R-4300	20¢	18¢
4.7	25	R-4310	20¢	18¢
10	25	R-4315	22¢	19¢
25	25	R-4320	24¢	22¢
33	10	R-4330	24¢	22¢
33	35	R-4340	28¢	23¢
47	25	R-4350	28¢	23¢
100	16	R-4360	28¢	23¢
100	25	R-4370	28¢	23¢
220	16	R-4380	60¢	55¢
220	25	R-4390	70¢	65¢
330	25	R-4400	75¢	67¢
470	16	R-4410	63¢	55¢
470	25	R-4420	75¢	65¢
640	16	R-4430	75¢	65¢
1000	16	R-4440	55¢	45¢
1000	25	R-4450	80¢	70¢
2500	25	R-4460	\$1.30	\$1.10
2500	80	R-4572	\$4.35	\$4.10
6800	10	R-4470	\$1.30	\$1.10
10000	10	R-4480	\$1.95	\$1.75

Value in uF	Voltage	Cat No	Price 1-9	Price 10 up
1000	100	R-4530	\$4.90	\$4.40
2500	80	R-4540	\$4.90	\$4.40
4000	75	R-4560	\$7.20	\$6.50
5600	40	R-4570	\$4.90	\$4.40

These electrolytics are specially made not to be polarised. They are designed for use where the voltage polarity across them changes - for example, in speaker cross-overs. They have a 50 volt rating.

Value in uF	Cat No	Price 1-9	Price 10 up
2.2	R-4600	55¢	45¢
4.7	R-4610	55¢	45¢
6.8	R-4620	55¢	45¢
10	R-4630	55¢	45¢
22	R-4640	55¢	45¢

## Tag Tantalums

Resin dipped electrolytics which use a tantalum dielectric, giving a very low leakage but a high capacitance for the size of the package. See data section for marking codes.

Value in uF	Voltage	Cat No	Price 1-9	Price 10 up
0.1	35	R-4700	60¢	55¢
0.22	35	R-4705	60¢	55¢
0.33	35	R-4710	60¢	55¢
0.47	35	R-4715	60¢	55¢
1.0	35	R-4720	60¢	55¢
1.5	35	R-4725	60¢	55¢
2.2	35	R-4730	60¢	55¢
3.3	35	R-4735	60¢	55¢
4.7	35	R-4740	70¢	65¢
6.8	35	R-4745	70¢	65¢
10	25	R-4750	70¢	65¢
15	16	R-4755	70¢	65¢
22	16	R-4760	70¢	65¢
33	10	R-4765	70¢	65¢
47	6.3	R-4770	70¢	65¢
100	3	R-4775	70¢	65¢

## Ceramics

Use ceramics when low inductance is important: for example, in many RF circuits. They offer a huge range of values and are all rated at 50 volts or higher.

Value	Cat No	Value	Cat No
1pF	R-2215	180pF	R-2291
1.5pF	R-2217	220pF	R-2293
2.2pF	R-2219	270pF	R-2295
2.7pF	R-2221	330pF	R-2296
3.3pF	R-2223	390pF	R-2297
3.9pF	R-2225	470pF	R-2299
4.7pF	R-2227	560pF	R-2301
5.6pF	R-2229	680pF	R-2303
6.8pF	R-2231	820pF	R-2305
8.2pF	R-2233	0.001uF	R-2307
10pF	R-2235	0.0022uF	R-2309
12pF	R-2237	0.0033uF	R-2311
15pF	R-2239	0.0047uF	R-2313
18pF	R-2241	0.0056uF	R-2315
22pF	R-2243	0.0068uF	R-2317
27pF	R-2245	0.0082uF	R-2319
33pF	R-2247	0.01uF	R-2321
39pF	R-2249	0.022uF	R-2323
47pF	R-2251	0.033uF	R-2325
56pF	R-2253	0.047uF	R-2327

All one price:  
1-9 10 or more  
15¢ ea 12¢ ea

## Special Ceramics 60V rating

Special large capacitance ceramics for special applications.

0.1uF	R-2360	1-9 20¢	10 up 18¢
0.22uF	R-2370	1-9 20¢	10 up 18¢

High Voltage ceramic (rated at 3kV) for mains suppression, etc.

0.01uF	R-2400	1-9 \$1.20	10 up 95¢
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## Ceramic Feedthroughs

Ideal for bypassing DC supply lines, RF amplifiers, noise suppression on motors, etc.

0.0012uF350V	R-2850	1-9 40¢	10 up 30¢
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## Trimmers

Mica compression type as used in a huge number of projects.

Value	Type	No Cat No	Price 1-9	Price 10 up
1.5-20	402	R-2900	\$1.20	\$1.00
7-60pF	404	R-2905	\$1.50	\$1.30
15-115	406	R-2910	\$1.95	\$1.70

## Variable Tuning Gang

60pF to 160pF miniature solid dielectric tuning capacitor suitable for replacement in many transistor radios, ideal for new projects too.

Cat No R-2970	1-9 \$1.68 ea	10 up \$1.00 ea
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# Semiconductors



## Transistors

### Germanium

Type	Description	Cat No	1-9	10 up
AC126	PNP	Z-1054	95c	80c
AC127	NPN	Z-1082	95c	80c
AC128	PNP	Z-1064	95c	80c
AC187	NPN	Z-1080	\$1.30	\$1.20
AC188	PNP	Z-1082	\$1.30	\$1.20
AD161	NPN	Z-1110	\$1.75	\$1.60
AD162	PNP	Z-1112	\$1.75	\$1.60
OC26	PNP	Z-1930	\$3.25	\$3.00
OC44	PNP	Z-1932	\$1.35	\$1.25
OC71	PNP	Z-1941	95c	85c

## FIVE YEAR GUARANTEE ON 'DS' TRANSISTORS!

Yes - we offer an exclusive five year guarantee on all transistors with a 'DS' prefix (e.g. DS548, DS549, etc). We're so confident of the high quality of these transistors we make this guarantee: if a 'DS' brand transistor fails in normal service (that is, used within specifications) any time up to 5 years from the date of purchase, we'll replace it free of charge!

Who else makes this amazing promise?

## Silicon: small signal/general purpose

DS547	NPN	Z-1300	14c	12c
DS548	NPN	Z-1308	14c	12c
DS549	NPN	Z-1319	14c	12c
BC549C	NPN lownoise	Z-1329	34c	30c
DS557	PNP	Z-1340	17c	15c
DS558	PNP	Z-1348	17c	15c
BC159	PNP	Z-1359	17c	15c
BC328	PNP	Z-2242	20c	17c
BC337	NPN	Z-2190	30c	27c
BC338	PNP	Z-2252	28c	25c
BC639	PNP	Z-1388	45c	40c
BC640	NPN	Z-1389	45c	40c
BCY71	PNP	Z-1241	95c	90c
BF115	NPN(rf)	Z-1560	85c	80c
BF173	NPN	Z-1590	95c	85c
BF180	NPN	Z-1602	\$1.45	\$1.35
BF184	NPN	Z-1604	\$1.00	95c
BF469	NPN	Z-1635	\$1.20	\$1.10
BF470	PNP	Z-1636	\$1.20	\$1.10
PN3563	NPN	Z-2180	35c	30c
PN3642	NPN	Z-2250	50c	45c
PN3645	PNP	Z-2256	30c	25c
2N3905	PNP	Z-2244	20c	17c
PN4250	PNP	Z-2320	50c	45c
PN4258	PNP	Z-2326	45c	40c

## Silicon - power

BD139	NPN	Z-1443	55c	50c
BD140	NPN	Z-1444	55c	50c
BD682	PNP	Z-1460	\$1.70	\$1.60
BD681	NPN	Z-1462	\$1.70	\$1.60
BUX80	NPN	Z-2150	\$7.50	\$7.00
MJ2955	PNP	Z-1800	\$1.95	\$1.75
2N3053	NPN	Z-2130	\$1.00	95c
2N3055	NPN	Z-1804	\$1.95	\$1.75
2N3019	NPN	Z-2068	\$1.00	95c
2N4030	PNP	Z-2064	\$1.00	95c
MJE2955	PNP	Z-2005	\$1.95	\$1.75
MJE3055	NPN	Z-2008	\$1.95	\$1.75
TIP31B	NPN	Z-2020	90c	80c
TIP32B	PNP	Z-2024	90c	80c
MJ15003	NPN	Z-1808	\$6.50	\$6.00
MJ15004	PNP	Z-1810	\$6.50	\$6.00
2SC1096	NPN	Z-2500	\$1.75	\$1.50
2SC2166	NPN	Z-2501	\$4.50	\$4.20
2SC1969	NPN	Z-2502	\$6.50	\$6.20
2N4284	NPN	Z-2394	\$25.00	\$20.00

## Diodes

### Germanium Small Signal

Type	Cat No	1-9	10 up
OA47	Z-3232	45c	40c
OA90	Z-3030	30c	25c
OA91	Z-3042	20c	15c
OA95	Z-3050	30c	25c

### Silicon Small Signal

BA100	Z-3060	40c	35c
OA202	Z-3100	40c	35c
1N914	Z-3120	8c	6c

### Silicon rectifiers

1N4002	Z-3202	8c	6c
1N4004	Z-3204	10c	08c
1N4007	Z-3207	14c	12c
1N5404	Z-3222	45c	40c
1N5408	Z-3228	50c	45c

### Heavy duty rectifiers

MR110	Z-3240	\$1.95	\$1.75
MR410	Z-3244	\$2.20	\$2.00
1N3492	Z-3260	\$2.85	\$2.65
1N3492R	Z-3262	\$2.85	\$2.65

### Rectifier Bridges

WO2	1.5A	Z-3300	60c	55c
WO4	1.5A	Z-3304	65c	60c
PB40	25A	Z-3334	\$6.50	\$5.95

### Special diodes

BB119	Varicap	Z-3070	75c	70c
5082 2800	Hot Carrier	Z-3230	\$3.00	\$2.80

## Field Effect Transistors

### General Purpose

Type	Description	Cat No	1-9	10 up
MPF102	N CH	Z-1832	75c	70c
2N4342	P CH	Z-1833	\$1.50	\$1.40
2N5459	N CH	Z-1838	75c	70c
MPF106	N CH	Z-1840	95c	90c
MPF31	N CH	Z-1848	\$1.45	\$1.10
2N5245	N CH	Z-2335	\$1.00	95c
2N5484	N CH	Z-2340	75c	70c

### Power MOSFETS

2SK134	N CH	Z-1815	\$6.50	\$6.00
2SJ49	P CH	Z-1816	\$6.50	\$6.00

## Light Emitting Diodes (LEDs)

Colour	Size/type	Cat No	1-9	10 up
Red	3mm	Z-4010	14c	12c
Green	3mm	Z-4020	20c	18c
Red	5mm	Z-4030	14c	12c
Green	5mm	Z-4032	20c	18c
Yellow	5mm	Z-4034	22c	20c
Orange	5mm	Z-4036	25c	22c
Clear/Red	5mm	Z-4038	45c	40c
Red	5mm Flashing	Z-4000	35c	30c
Red	Rectangular	Z-4040	25c	22c
Green	Rectangular	Z-4042	25c	22c
Yellow	Rectangular	Z-4044	25c	22c

## LED Displays

Type No.	Digit Size	Construction	Cat No.	Price 1-9	Price 10 up
LT303	8mm	Common Cathode	Z-4103	\$1.45	\$1.35
LT302	8mm	Common Anode	Z-4117	\$1.45	\$1.35
FND500	13mm	Common Cathode	Z-4150	\$1.50	\$1.40
6680	13mm	Common Cathode	Z-4151	\$2.95	\$2.75
TIL393.9	13mm	9 digit LED display	Z-4155	\$1.50	\$1.40

## Liquid Crystal Displays

LCD4.5	10mm	4 1/2 digit liquid crystal	Z-4175	\$9.95	\$8.70
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## TTL

Type No	Description	Cat No	1-9	10 up
7400	Quad 2 input NAND gate	Z-5010	45c	38c
7401	Quad 2 input NAND open collector	Z-5011	45c	38c
7402	Quad 2 input NOR gate	Z-5012	45c	38c
7404	Hex Inverter	Z-5014	45c	38c
7405	Hex inverter open collector	Z-5015	45c	38c
7408	Quad 2 input AND gate	Z-5018	45c	38c
7410	Triple 3 input AND gate	Z-5020	45c	38c
7413	Dual NAND Schmitt trigger	Z-5023	50c	42c
7414	Hex Schmitt trigger	Z-5024	\$1.00	95c
7420	Dual 4 input NAND gate	Z-5030	50c	42c
7430	8 input NAND gate	Z-5035	50c	42c
7437	Quad 2 input NAND buffer	Z-5040	50c	42c
7447	BCD to 7 segment decoder/driver	Z-5047	\$1.20	\$1.10
7454	2 wide 2 input AND/OR inverter	Z-5054	50c	42c
7473	Dual JK master/slave flip flop	Z-5073	50c	42c
7474	Dual D edge triggered flip flop	Z-5074	50c	42c
7475	Quad bistable latch	Z-5075	50c	42c
7476	Dual JK master/slave flip flop	Z-5076	65c	58c
7485	4 bit magnitude comparator	Z-5085	\$1.40	\$1.30
7486	Quad 2 input exclusive OR gate	Z-5086	65c	58c
7490	Decade counter	Z-5090	65c	58c
7492	Divide by 12 counter	Z-5092	65c	58c
7493	4 bit binary counter	Z-5093	90c	80c
7495	4 bit L-R shift register	Z-5095	90c	80c
74109	Dual J-K triggered flip flop	Z-5252	90c	80c
74121	Monstable multivibrator	Z-5260	65c	58c
74123	Re-triggerable monostable multi	Z-5263	90c	80c
74157	Multiplexer	Z-5267	90c	80c
74191	Sync binary up/down counter	Z-5269	\$1.20	\$1.10
74192	Sync Decade up/down counter	Z-5270	\$1.60	\$1.50
74193	Sync binary up/down counter	Z-5280	65c	58c
74196	Decade divider	Z-5281	\$1.95	\$1.80

## Low power Schottky TTL

74LS00	Quad 2 input NAND	Z-4900	40c	35c
74LS01	Quad 2 input NAND open collector	Z-4901	40c	35c
74LS02	Quad 2 input NOR	Z-4902	40c	35c
74LS04	Hex Inverter	Z-4904	40c	35c
74LS05	Hex inverter open collector	Z-4905	40c	35c
74LS08	Quad 2 input AND gate	Z-4908	40c	35c
74LS10	Triple 3 input NAND	Z-4910	40c	35c
74LS14	Hex Schmitt trigger	Z-4914	40c	35c
74LS20	Dual 4 input NAND	Z-4920	40c	35c
74LS27	Triple 3 input NOR	Z-4927	40c	35c
74LS30	8 input NAND	Z-4930	40c	35c
74LS32	Quad 2 input OR	Z-4932	40c	35c
74LS73	Dual J-K flip flop	Z-4973	75c	70c
74LS74	Dual D edge triggered flip-flop	Z-4974	75c	70c
74LS76	Dual J-K master/slave flip flop	Z-4976	75c	70c
74LS85	4 bit magnitude comparator	Z-4985	75c	70c
74LS86	Quad 2 input OR	Z-4986	75c	70c
74LS90	Decade Counter	Z-4990	75c	70c
74LS92	Divide by 12 counter	Z-4992	95c	90c
74LS93	4 bit binary counter	Z-4993	75c	70c
74LS95	4 bit L-R shift register	Z-4995	90c	82c
74LS97	Monostable multivibrator	Z-4997	90c	82c
74LS132	Quad 2 input Schmitt trigger	Z-5283	90c	82c
74LS138	Expandable 3/8 decoder	Z-5284	90c	82c
74LS139	Multiplexer	Z-5285	90c	82c
74LS165	Parallel load 8 bit shift register	Z-5288	90c	82c
74LS174	6 bit D type flip-flop	Z-5290	90c	82c
74LS367	Hex bus driver & 3 stage output	Z-5292	90c	82c
74LS373	Octal 3 stage latch	Z-5295	\$1.95	\$1.90



## ZENER DIODES

Rated at one watt (yes, 1W - not 400mW!) but our Zeners are about the same price as everyone else's 400mW! Get extra safety margin for no extra cost!

All one price: **30¢**

Ten or more of same type: **25¢ ea**

1N4728 (3.3V)	Z-3515	1N4741 (11V)	Z-3541
1N4729 (3.6V)	Z-3517	1N4742 (12V)	Z-3543
1N4730 (3.9V)	Z-3519	1N4743 (13V)	Z-3545
1N4731 (4.3V)	Z-3521	1N4744 (15V)	Z-3547
1N4732 (4.7V)	Z-3523	1N4745 (16V)	Z-3549
1N4733 (5.1V)	Z-3525	1N4746 (18V)	Z-3551
1N4734 (5.6V)	Z-3527	1N4747 (20V)	Z-3553
1N4735 (6.2V)	Z-3529	1N4748 (22V)	Z-3555
1N4736 (6.8V)	Z-3531	1N4749 (24V)	Z-3557
1N4737 (7.5V)	Z-3533	1N4750 (27V)	Z-3559
1N4738 (8.2V)	Z-3535	1N4751 (30V)	Z-3561
1N4739 (9.1V)	Z-3537	1N4752 (33V)	Z-3563
1N4740 (10V)	Z-3539		

## LINEAR INTEGRATED CIRCUITS

### Operational Amplifiers

Type	Description	Cat No	1-9	10 up
CA3140	Fet input op amp	Z-5417	\$1.50	\$1.30
CA3080	Transconductance op amp	Z-6024	\$2.45	\$2.20
CA3130	Fet input op amp	Z-6025	\$2.25	\$2.05
LM301	CMOS op amp np	Z-6040	c	80c
LM308	Precision op amp	Z-6045	\$1.00	95c
LM324	Quad op amp	Z-6102	\$1.00	95c
LM381	Dual op amp	Z-6081	\$2.75	\$2.50
LM394C	Dual diff. supermatch	Z-6083	\$4.90	\$4.50
LM3900	Quad op amp	Z-6100	\$1.00	95c
NE5534P	Low noise op amp	Z-6080	\$4.50	\$4.20
TL071CP	Single JFET op amp	Z-6030	95c	90c
TL072CP	Dual JFET op amp	Z-6032	\$1.45	\$1.40
TL074CP	Quad JFET op amp	Z-6034	\$3.25	\$2.95
UA709	Gen purpose op amp	Z-6352	80c	75c
UA741	Gen purpose op amp	Z-6382	40c	35c
UA4136	Quad op amp	Z-6105	\$2.00	\$1.80

### General Purpose Linear IC's

DS8629	135MHz divider	Z-5418	\$6.90	\$6.50
LM311	Voltage comparator	Z-6048	90c	85c
LM339	Quad comparator	Z-6039	\$1.25	\$1.10
LM380	Audio amplifier	Z-6080	\$1.95	\$1.75
LM382	Stereo preamplifier	Z-6082	\$2.20	\$1.90
LM2917	Frequency to voltage conv	Z-6112	\$3.20	\$2.95
LM334Z	Temperature sensor	Z-6810	\$1.95	\$1.85
LM3909	LED flasher/oscillator	Z-6109	\$1.30	\$1.15
MC10116L	Triple differential amplifier	Z-5415	\$1.95	\$1.85
MM5865	Universal timer	Z-6818	\$7.50	-
MM5837	Noise generator	Z-6130	\$3.90	\$3.50
NE555/DS555	Universal timer	Z-6145	\$1.00	95c
NE556	Dual timer	Z-6146	\$1.00	95c
OM350	Wideband VHF/UHF amplifier	Z-6185	\$9.95	\$9.50
SC-01	Voice synthesiser	Z-6818	\$79.50	\$69.00
TA7205	Gen purpose CB Audio Amp	Z-2503	\$4.50	\$4.20
TA7214	Audio Power Amp	Z-2504	\$7.00	\$6.70
XR-2206	Function Generator	Z-6820	\$6.95	\$6.50
ZN414	One-chip radio	Z-6520	\$4.35	\$3.95
76488N	Universal sound synthesiser	Z-6823	\$4.95	\$4.50

## OPTO-ELECTRONIC DEVICES

FPT100	Silicon photo diode with lens. $V_{CE}$ 50 typ. @ $I_C$ (I) 1.4mA typ @ $H$ 5mW/cm <sup>2</sup> with $V_{CE}$ 5.	Z-1950	\$1.45	\$1.35
MEL12	Silicon darlington transistor with lens $V_{CE}$ 40 typ @ $I_C$ (I) 3mA typical @ 3mW/cm <sup>2</sup> $V_{CE}$	Z-1952	\$2.90	\$2.75
BPW50	Photo diode	Z-1956	\$2.95	\$2.75
QOY894/LD217	Infra-red LED	Z-3235	\$1.95	\$1.80
ORP12	Light Dependent resistor (Similar LDR03 or 2322 600 95001). Dark value approx 10 megohms; light value 75-300 ohms	Z-4800	\$2.90	\$2.75
DSCDS01	Cadmium Sulphide (CdS) light dependent resistor.	Z-4801	40c	35c
4N28	Optic Coupler - consists of LED and NPN photo transistor, giving a minimum isolation voltage of 500V. LED: Vr - 3V, If 80mA cont., If - 3A Pk. Vf @ 50mA If: 1.5V maximum. Pd 150mW. Transistor: Vce 30V, Vcb 70V, Pd 150mW. Ice dark current 50nA ma. (Vce 10V)	Z-4804	\$1.45	\$1.35
SOLAR CELL	75mm solar cell. Produces 0.21V @ 21mA.	Z-4840	\$9.95	\$8.95

## VOLTAGE REGULATORS

Type No	Description	Cat No	1-9	10 up
LM723	Adjustable 2-37V regulator	Z-6362	95c	75c
LM317/T	Adj 2-30V regul. (TO-220)	Z-6541	\$1.90	\$1.75
LM317/K	Adj 2-30V regul. (TO-3)	Z-6542	\$2.90	\$2.75
7805	3 terminal 5V positive reg.	Z-6545	95c	85c
7812	3 terminal 12V positive reg.	Z-6552	95c	85c
7815	3 terminal 15V positive reg.	Z-6554	95c	85c
7905	3 terminal 5V negative reg.	Z-6555	\$1.50	\$1.40
7912	3 terminal 12V negative reg.	Z-6556	\$1.50	\$1.40
7915	3 terminal 15V negative reg.	Z-6557	\$1.50	\$1.40
UA78H05	5 volt 5 amp regulator	Z-6570	\$7.75	\$7.15

## THYRISTORS

### SCR'S

#### In economy plastic packs

Type	Vdrm	It(A) rms	Use	Cat No	1-9	10 up
C103B	200	0.8	Small Current	Z-4310	90c	85c
C106Y1	30	4	Sensitive gate	Z-4315	75c	70c
C122E	400	4	Sensitive gate	Z-4320	90c	85c
C106D	500	8	AC Switch	Z-4332	\$1.50	\$1.40
(BT151, TIC126E)						

### TO-48 Stud packs

C164D	400	16	High Current	Z-4354	\$4.25	\$3.75
C168D	800	16	High Current	Z-4358	\$6.95	\$6.50

## TRIACS

### Economy plastic packs

SC141D	400	8	AC switch	Z-4510	\$1.45	\$1.35
(Q4006L4 or 2N6343 - 8A)						
SC151D	400	15	AC switch	Z-4520	\$3.25	\$3.00

## TRIGGERING DEVICES

ST4	Asymmetrical trigger diode - suitable trigger for SC141/151)	Z-4740	95c	90c
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## TRIAC DRIVER

MOC3021	Opto coupled triac driver	Z-4516	\$2.75	\$2.50
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## UNIUNCTIONS

2N6027 (D13T1)	Programmable Uniunction	Z-1780	59c	55c
DS2646/2N2646	(equiv to 2N2646) uniunction	Z-1786	95c	90c

## CMOS

74C00	Quad 2 input NAND	Z-5410	50c	45c
74C14	Hex Schmitt trigger	Z-5413	\$1.00	95c
74C926	4 decade counter	Z-5414	\$6.90	\$6.50
4000	Dual 3 input NOR with inverter	Z-5600	35c	32c
4001	Dual 2 input NOR	Z-5601	35c	32c
4002	Dual 4 input NOR	Z-5602	35c	32c
4007	Dual comp pair with inverter	Z-5607	38c	35c
4009	Hex inverter buffer/level shift	Z-5609	75c	65c
4011	Quad 2 input NAND	Z-5611	35c	32c
4012	Dual 4 input NAND	Z-5612	35c	32c
4013	Dual D edge triggered flip-flop	Z-5613	70c	65c
4016	Quad Analog switch	Z-5616	50c	45c
4017	Decade counter/divider	Z-5617	90c	85c
4019	Quad AND/OR select gate	Z-5619	90c	85c
4020	14 bit bin counter	Z-5620	\$1.20	\$1.10
4023	Triple 3 input NAND	Z-5623	35c	32c
4024	7 stage ripple counter	Z-5624	\$1.20	\$1.10
4025	Triple 3 input NOR	Z-5625	35c	32c
4026	Decade counter/7 segment driver	Z-5626	\$1.90	\$1.80
4027	Dual J-K flip flop	Z-5627	70c	65c
4028	BCD to decimal decoder	Z-5628	\$1.20	\$1.10
4029	Preset up/dn binary/decade counter	Z-5629	\$1.95	\$1.85
4030	Quad EXCLUSIVE OR gate	Z-5630	80c	75c
4040	12 stage ripple counter	Z-5640	\$1.30	\$1.20
4046	Phase Locked Loop	Z-5646	\$1.95	\$1.80
4047	Monostable multivibrator	Z-5647	\$1.50	\$1.40
4049	Hex inverter/buffer	Z-5649	75c	70c
4050	Hex non inverting buffer	Z-5650	60c	55c
4051	8 channel analog multiplexer	Z-5651	\$1.20	\$1.00
4068	8 input NAND	Z-5668	35c	32c
4069	Inverter	Z-5669	50c	45c
4071	Quad 2 input OR	Z-5671	40c	35c

4081	Quad 2 input buffered AND gate	Z-5681	40c	35c
4093	Quad 2 input NAND/Schmitt trigger	Z-5693	65c	60c
40194	4 bit bi-directional shift register	Z-5694	\$3.90	\$3.50
4511	BCD-7 segment decoder/driver/latch	Z-5730	\$1.50	\$1.40
4518	Dual BCD up counter	Z-5740	\$1.95	\$1.80
4520	Dual binary up counter	Z-5742	\$1.55	\$1.45
4526	4 bit programmable down counter	Z-5744	\$1.95	\$1.75

### Special digital IC's

81LS95	Tri-state octal driver	Z-5300	\$2.75	\$2.50
95H90	Decade Counter	Z-5360	\$15.60	-
11C90	ECL pre-scaler	Z-5361	\$19.95	-
DS1488	Quad line driver	Z-5370	\$1.80	\$1.70
MM5369A	60Hz divider IC	Z-5781	\$2.95	\$2.70
MM5369EYRN	Divider	Z-5782	\$3.75	\$3.50
LM3914	10 LED driver	Z-6295	\$4.75	\$4.25
ICL7106	LCD Analog/digital converter	Z-6300	\$9.95	\$9.00
AY3-8112	Clock/frequency counter	Z-6832	\$12.50	-

### Computer-related digital IC's

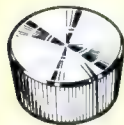
2513	Character generator	Z-9206	\$19.50	-
2516	2K EPROM	Z-9207	\$6.95	-
2532	4K EPROM	Z-9208	\$19.95	\$19.00
2102	2K RAM	Z-9302	\$2.30	\$2.10
2114	4K RAM	Z-9306	\$2.25	\$2.00
4116	16K dynamic RAM	Z-9310	\$2.95	\$2.75
MM5303	UART	Z-9204	\$6.95	\$6.00
Z-80	Microprocessor CPU	Z-9100	\$9.95	-
Z-80	Microprocessor PIO	Z-9101	\$8.50	-



# Components

## KNOBS - Metric Range

These knobs are used with standard metric 'fluted shaft' potentiometers and switches (see appropriate pages). No grub screw is required: they simply push onto the shaft. Most new equipment is now being designed with metric shaft pots and switches so new projects should be based on these knobs.



A superbly elegant knob in bright aluminium with fine vertical lines around the body. 35mm diam, 19mm deep.  
Cat H-3844 10 or more

**\$1.35** **\$1.25**



Smaller version of above, great for matching up with on equipment. 25mm diam, 17mm deep.  
Cat H-3842 10 or more

**\$1.05** **95¢**



The most popular knob we've ever sold. Satin aluminium finish with knurled body for positive grip. 30mm diam, 22mm deep.  
Cat H-3845

**\$1.05** **95¢**



Smaller version of above, use it in conjunction for a stunning effect. 25mm dia, 17mm deep.  
Cat H-3843 10 or more

**95¢** **85¢**



Black finished knob with silver shoulder and white marker. 21mm diam, 22mm deep.  
Cat H-3830 10 or more

**95¢** **85¢**



Black body with deep flutes down side for positive grip. White radius pointer. Size 16mm diam, 17mm deep.  
Cat H-3826 10 or more

**75¢** **60¢**



Aluminium knob with fine serrations down top third of body. With pointer, size 21mm diam, 18mm deep.  
Cat H-3834 10 or more

**\$1.05** **95¢**



Tiny elegant knob, finished in black with silver shoulder and pointer. 14mm diam, 12mm deep.  
Cat H-3820 10 or more

**65¢** **60¢**

**NEW FOR 83**

Introducing our new range of equipment knobs. Metric shaft fitting, superb satin black finish, in a range of four sizes to suit virtually any project.



28mm wide body with integral pointer across the top, carried down and through the 35mm wide skirt. Skirt is notched at pointer for easy reference. Height (including skirt) is 17mm.  
Cat H-3865 10 or more

**\$1.20** **\$1.10**



Similar to above, but with narrower body. Would make an ideal bass or treble knob on an amplifier with above knob used as volume.  
Cat H-3860 10 or more

**90¢** **80¢**



Smaller again - ideal knob for test instruments, etc. 15mm wide with 20mm skirt, knob height is also 15mm.  
Cat H-3855 10 or more

**75¢** **65¢**



The smallest of the range - ideal knob for tight panels! Just 11mm body, 15mm skirt and 15mm overall.  
Cat H-3850 10 or more

**55¢** **50¢**

## SLIDER POT KNOBS

Push-on knob for 8mm slider pot shafts. 'Chromed' plastic with black face and marker line. 15mm deep, with rear dimensions 10.5 x 16mm  
Cat H-3780 10 or more



**65¢** **55¢**



Black anodised knob to suit slider pots. As used in the Playmaster Graphic Equaliser. Size 10mm dia. 16mm deep.  
Cat H-3782 10 or more

**55¢** **50¢**

## VERNIER DRIVE

Precision vernier drive, designed for front panel mounting. 50mm dia.

Cat H-3900

**\$5.45** 10 or more

**\$5.00**



## IMPERIAL EXTENSION SHAFT

Machined brass shaft for imperial pot shafts, tuning gangs, etc. Cat H-3950



10 or more **\$1.65**  
**\$1.55**

## DIAL DRIVE SPINDLE

Spindle & bush assembly for dial drives. Has standard 6.3mm shaft; fits standard panel hole. Cat H-3954



**\$2.60**

## ALUMINIUM HEATSINKS

### FLAG TYPE



Flag type heatsink suits older style germanium transistors (TO-1): OC74, AC128, etc.

Cat H-3480 1-9 ..... **20¢ ea**  
10 or more ..... **16¢ ea**

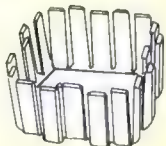
### ROUND TO-5



Manufactured to exacting tolerances to ensure a snug fit and best possible heat transfer on TO-5 cases. Massive body allows rapid heat dissipation.

Cat H-3412 1-9 ..... **55¢ ea**  
10 or more ..... **50¢ ea**

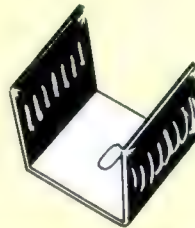
### POWERFIN FOR TO-3



This heatsink gives the greatest possible heat dissipation in the smallest possible space. It has a unique fin design that gives a very high air to metal ratio (thermal rating approximately 5 degrees C/Watt). Measures only 50mm square x 25mm high, pre-punched to suit TO-3 case. Black anodised finish.

Cat H-3400 1-9 ..... **\$1.95 ea**  
10 or more ..... **\$1.80 ea**

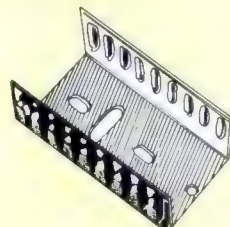
### MINI



Because it suits virtually all flat (plastic type) semiconductors, this heatsink is used extensively on PCB, etc. Has vertical flutes for maximum thermal efficiency.

Cat H-3402 1-9 ..... **80¢ ea**  
10 or more ..... **75¢ ea**

### UNIVERSAL



Universal hole pattern allows the mounting of virtually all 'power' type semiconductors. Ribbed walls and black anodised finish for maximum efficiency.

Cat H-3401 1-9 ..... **\$1.00 ea**  
10 or more ..... **90¢ ea**

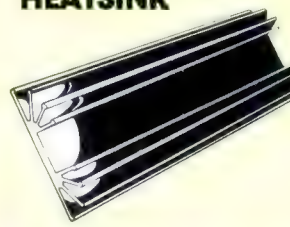
## HIGH EFFICIENCY POWER HEATSINK



With its thick base and radial fin design this heatsink is able to dissipate huge amounts of heat. It is black anodised for even greater efficiency. Thermal resistance mounting surface to ambient -1 degree/watt (at 2 ft/sec forced air flow). Mounting surface temperature rise above ambient with no forced air flow 60 degrees @ 30W heat dissipation level.

Cat H-3422 1-9 ..... **\$3.25 ea**  
10 or more ..... **\$3.10 ea**

## EXTRA HEAVY DUTY POWERFIN HEATSINK



225mm length! Similar to above heatsink in cross section, but three times the length. For those big projects where a lot of heat has to be removed!

Cat H-3426 1-9 ..... **\$9.75 ea**  
10 or more ..... **\$9.45 ea**

## VERSATILE POWER HEATSINK

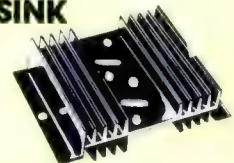


The ingenious design of this heatsink makes it possible to mount it either flat on a panel, or at right angles to it (eg inside a case). The side fins also have tongue & groove so they may be joined sideways. Drilled version takes 2x TO-3's. Size is (mm) 78 x 110 x 33

Undrilled Cat H-3460 1-4 ..... **\$5.75 ea**  
5 or more ..... **\$5.45 ea**

Pre-drilled Cat H-3461 1-5 ..... **\$5.95 ea**  
5 or more ..... **\$5.50 ea**

## ECONOMY POWER HEATSINK



Flag mounting with fins both top and bottom. Available in either drilled or undrilled versions, drilled accepts two power transistors of most type: TO-3, TO-126, TO-220, etc. Size (mm) 75 x 102 x 25. Thermal resistance mounting surface to ambient -1 degree/watt (at 2 ft/sec forced air flow). Mounting surface temperature rise above ambient with no forced air flow 60 degrees @ 30W heat dissipation level.

Undrilled Cat H-3470 1-9 ..... **\$3.75 ea**  
10 or more ..... **\$3.40 ea**

Pre-drilled Cat H-3471 1-9 ..... **\$3.95 ea**  
10 or more ..... **\$3.75 ea**



# KNOBS - Imperial Range

These are mainly intended to be used as replacements on existing equipment. They fit standard 1/4 inch shafts, and are tightened by a grub screw. If you have to use an imperial knob on a metric (fluted) shaft, it can normally be done by using a piece of shim on the metric shaft and tightening the grub screw onto the shim.



A very large plastic knob for positive grip and 'feel'. Knurled edge, with metal insert and black pointer. Size 40mm dia x 16mm.

Cat H-3760  
10 or more  
**85¢ 75¢**



Another very popular knob. The pointer runs right through from the top to the edge of the skirt. Silver insert. Size 24mm dia, 14mm deep.

Cat H-3772  
10 or more  
**75¢ 65¢**



A superb instrument knob with wide skirt, calibrated 1-10 in black on silver. Size 37mm dia, 15mm deep.

Cat H-3770  
10 or more  
**\$1.00 90¢**



Small knob with fluted sides, small skirt with dot pointer. Size 19mm dia, 13mm deep.

Cat H-3762  
10 or more  
**60¢ 55¢**



A very popular knob for all instruments, etc. Very positive grip and wide skirt with white pointer engraved on top. Size 32mm dia, 16mm deep.

Cat H-3766  
10 or more  
**65¢ 55¢**



Heavily fluted for positive grip, in black with deeply inlaid pointer on top and matching dot on skirt. Size 24mm dia x 15mm deep.

Cat H-3768  
10 or more  
**55¢ 45¢**

## MINIATURE LED BEZEL

Our most popular. Low current drain (20mA @ 2 volts) but offering high visibility. Smart chrome bezel, needs a 7mm hole. Two colours available: red & green.



Red: Cat S-3528  
Green: Cat S-3529  
**\$4.55 \$4.60**  
(10 up \$1.40) (10 up \$1.60)

## DUAL COLOUR LED BEZEL

Red & Green in one!

A fantastic ideal Two LEDs in one bezel - ideal for two-state indication (on/off, etc). Chrome plated bezel, ideal for logic circuits, etc. Operates on 1.3 - 1.5V @ 25 - 30mA.



**\$2.60**  
(10 up \$2.35)  
Cat S-3530

## LED MOUNTING BEZELS

When using LEDs on front panels, etc, use these self-locking bezels. Suit standard size (5mm) LEDs, and make a really neat job. They work out at around 6¢ each! (Pack of 15 bezels).



Pack of 15  
**95¢**  
Cat H-1910

## MINIATURE NEON BEZEL

A favourite because of its tiny size. Used a lot in mains powered projects - simply use 270k resistor in series. Requires only 7mm mounting hole, and the bezel itself is chrome-coloured. Remember to use a series resistor with all neons - they tend to get upset otherwise!



Cat S-3552

**\$4.60**  
(10 up 90¢)

## 240V NEON BEZEL

Intended for 240 volt projects, this bezel can be wired direct to the mains. It has a series resistor actually mounted inside the bezel case. It requires a 9mm mounting hole, front of bezel is neat clear plastic resulting in high visibility red light from neon.



Cat S-3550

**\$4.45**  
(10 up \$1.00 ea)

## Looking for LEDs?

You'll find them back one page in the 'Semiconductors' section.

Why endanger valuable IC's by soldering them directly into circuits? Take the safe approach: use an IC socket! It makes service and repair of your projects much, much easier too. There's an IC socket to suit almost all common IC's.

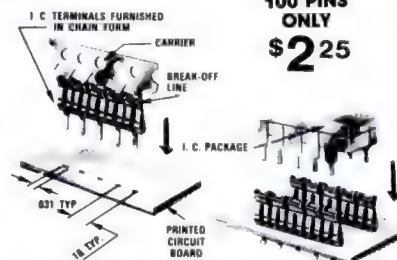


8 Pin Mini DIL Socket	Cat P-4080	27¢	25¢
14 Pin DIL socket	Cat P-4140	32¢	30¢
14 pin DIL Plug	Cat P-4142	\$1.45	\$1.35
16 pin DIL socket	Cat P-4160	37¢	30¢
16 pin DIL plug	Cat P-4162	\$1.80	\$1.75
18 pin DIL socket	Cat P-4180	37¢	30¢
20 pin DIL socket	Cat P-4200	37¢	30¢
24 pin DIL socket	Cat P-4240	55¢	50¢
40 pin DIL socket	Cat P-4250	75¢	65¢
14 pin wirewrap DIL socket	Cat P-4260	\$1.00	90¢
16 pin wirewrap DIL socket	Cat P-4262	\$1.20	\$1.05
20 pin wirewrap DIL socket	Cat P-4264	\$1.55	\$1.40
24 pin wirewrap DIL socket	Cat P-4268	\$1.80	\$1.65

Type	Cat No	1-9	10 up
T0-5 suit 2N3053, etc (not illus)	P-4015	75¢	70¢
T0-3 suit 2N3055, etc	P-4023	60¢	55¢

## Make your own IC sockets!

Fantastic idea! Never run out of IC sockets - because you make your own! Just cut the required number of pins from the strip and solder them in. After you insert the IC, you break off the carrier strip (also helps protect the IC from static damage). 100 pins strip.



100 PINS ONLY  
**\$2.25**

Pack 100 Molex IC socket strips  
Cat P-4504..... \$2.25 pk

## NEONS

Small pigtail type neon bulb as used in indicators, timing circuits, oscillators, etc. Striking voltage 70 - 90 volts at 600uA. For 240V operation use 270k 1/4W resistor (other voltages can be worked out from Ohm's law.) Cat S-3862



**\$4.60**  
(10 up 35¢ ea)

## 12 VOLT BEZEL

A very attractive medium size bezel using a 12V LES bulb. The plastic lens is available in two colours (red and green) for various uses, and the lens itself is flat-topped, resulting in a modern appearance. The body of the bezel is chrome plated. Requires an 11mm mounting hole, and obviously 12 volts AC or DC. Don't forget to order the colour you require.



Red - Cat S-3510  
Green - Cat S-3512

**\$4.60**  
(10 up 75¢)

## COLOURED 240V FLOODLAMPS

Coloured PAR38 floodlamps, made of pressed glass with internal reflector for optimum brilliance. Ideal for display, party or other decorative or warning purposes. Available in four colours; 240V operated.



YELLOW S-3850 RED S-3852 BLUE S-3854 GREEN S-3856

**\$8.00**  
(10 up \$8.00)

## HOLDER TO SUIT

Swivel Edison Screw lamp holder to suit PAR38 bulbs



Cat P-5620

## BULBS

Miniature Edison Screw (MES) and Lilliput Edison Screw (LES) bulbs for dial lamps, etc. Standard 6 and 12 volt types. Ideal for all new work and replacements.



MES  
6 VOLT Cat S-3806  
12 VOLT Cat S-3812



LES  
6 VOLT Cat S-3836  
12 VOLT Cat S-3842

Socket to suit MES bulbs (Cat S-3880) **65¢ ea**  
(10 up 60¢)

## XENON FLASHTUBE

Xenon-filled flash tube, as used in strobes, warning and safety applications, photographic work, etc. And look at the bargain price! You'd expect to pay double! Operate from 200 - 400 volts (300V nominal) with 4kV trigger. 5 watts maximum input power.



Cat S-3882  
Trigger transformer to suit:

4kV trigger transformer for above flashtube. PCB mounting type. 300V primary, 4kV sec.

Cat M-0104

**\$9.00**  
(10 up 90¢)

## 'BLACKLITE' GLOBE

240V incandescent lamp especially made for emitting UV light. Standard bayonet cap (BC) fitting so you can plug it into an ordinary light socket. For parties, special lighting effects, etc.



Cat S-3900



# Hardware Packs

Unless otherwise stated, columns show:  
Description Quantity in Pack Cat No Price

How many hours have you spent stripping, soldering and insulating wire? Forget it in the future! These brilliant connectors join wires instantly. All you have to do is lay the two wires to be joined inside the connector and squeeze the connector together with pliers. Can be used in car wiring, trailer wiring, etc. hundreds of uses. 2 units per pack



Cat H-6720 Pack of 2

**60c**

This is a self-locking grommet that maintains a secure grip on the cable without the use of separate clamps. Both - a grommet and clamp in one! Fits 3 core miniflex or equivalent cable size

Hole size 12mm to 16mm 4 H-1724

**90c**



Just think - no holes to bore in your chassis, you just stick these handsome black feet on! They have hundreds of uses including being used on store bought equipment

15 x 5mm small square 4 H-1745 **80c**  
20 x 8mm large square 4 H-1749 **85c**

These are heavy duty Nylon cable clamps and are a must for terminating power cords and all cables especially in projects

Cable up to 5mm diameter 5 H-1964 **80c**  
Cables up to 6mm diameter 5 H-1965 **80c**  
Cables up to 8mm in diameter 5 H-1966 **80c**



When making any project that little extra professionalism will make the job look better. These units will handle up to 20mm diameter and down to 2 single wires.

Cat. H-1970..... 20 in pack..... **\$1.35**



Heavy duty grommets made of black rubber. Essential when cable passes through a metal chassis as they will prevent frayed cables and live chassis



Hole Size	Bore	No in pack	Cat No	Price
8mm	5.5	10	H-1712	<b>90c</b>
16mm	6	10	H-1716	<b>90c</b>
12mm	9	8	H-1719	<b>90c</b>



The conventional rubber feet that have a 3mm hole for screw mounting. Made of black rubber, they can also be cemented on to your project

Cat. H-1736..... 8 in a pack..... **80c**

## INSULATED TRANSISTOR MOUNTING KITS TO-3 TYPE

**75c**

A pack of four TO-3 transistor mounting kits (mica washer and 2 bushes). Specially selected to give maximum heat transfer.



Cat H-1917

## TO-220 TYPE

**95c**

Now there's no problem in mounting TO-220 type semis. Pack of 5 insulating washers and bushes.



Cat H-1916

## TO-3 TRANSISTOR INSULATING CAP

**35c**

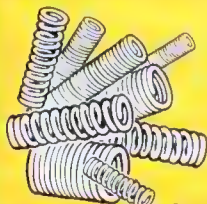
A high quality plastic cap that is a press fit over TO-3 transistors. Avoid shorts to chassis (which could blow the transistor) or exposed high collector voltages (which could blow you!) Fit a cap to those TO-3's



Cat H-1918

## ASSORTED SPRING PACK

Between 100 and 200 springs in assorted sizes from tiny ones through to big ones! Each pack is made up of a mixture of compression and tension types. All are brand new manufacturer's oversamples, etc. Some are worth over 30c each!

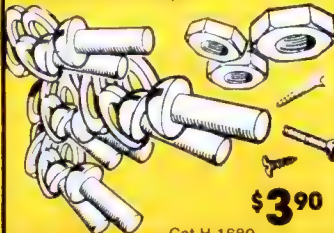


**\$3.20**

Cat H-1690

## ASSORTED SCREW PACK

A fantastic collection of over 200 pieces of the most popular small sizes of screws, nuts and washers. Ideal to have on hand in your workshop - for the serviceman or home hobbyist.



**\$3.90**

Cat H-1680

## NYLON NUTS AND BOLTS

Precision moulded from '66' white nylon. Fully insulated, will not shake loose, can resist high temperatures and they are corrosion free. These items are hard to get but we have them and they are ideal for transistor and heatsink use. Tough but light.

Description	Qty. pack	Cat. No	Price per pack
12mm x 4BA cheese head	10	H-1012	<b>95c</b>
25mm x 4BA cheese head	10	H-1022	<b>95c</b>
4BA hex nut	12	H-1302	<b>\$1.95</b>
4BA washer	12	H-1452	<b>95c</b>
12mm x 6BA cheese head	10	H-1032	<b>95c</b>
25mm x 6BA cheese head	10	H-1042	<b>80c</b>
6BA hex nut	12	H-1312	<b>\$1.95</b>
6BA washer	12	H-1462	<b>95c</b>



## STEEL NUTS AND BOLTS

1/4" Whitworth round head Zinc plated - just the kind of item that should be in your 'ready' box for future projects

9mm long	25	H-1052	<b>75c</b>
12mm long	25	H-1062	<b>75c</b>
25mm long	20	H-1072	<b>75c</b>
3mm hex nut	30	H-1322	<b>90c</b>
3mm shake proof washer	50	H-1472	<b>80c</b>
3mm metal washer	50	H-1482	<b>80c</b>



## BA TYPE NUTS AND BOLTS

Both brass and steel types in cheesehead.

12mm x 4BA bolt	25	H-1082	<b>75c</b>
4BA hex nuts (brass)	20	H-1332	<b>90c</b>
4BA flat washer (steel)	50	H-1488	<b>80c</b>
4BA shake proof washer	50	H-1486	<b>80c</b>
12mm x 6BA bolts	25	H-1092	<b>80c</b>
6BA hex nuts (brass)	25	H-1342	<b>90c</b>

6BA pack containing 12 of each - 12mm bolts, brass nuts and shakeproof washers. A total of 36 units.

Cat. H-1684..... **\$1.50**

8BA pack containing 12 of each - 12mm brass bolts, nuts, and washers. A total of 36 units.

Cat. H-1682..... **\$1.95**

## SELF-TAPPING SCREWS

Ideal for projects or as replacements for lost screws. These units are Cadmium plated steel

No.4 x 12mm: Size 40	25	H-1612	<b>80c</b>
No.4 x 6mm: Size 40	25	H-1611	<b>80c</b>
No.8 x 12mm: Size 30	25	H-1632	<b>95c</b>



## SPACERS



Made in England in high quality Nickel plated brass. To increase the length of spacers - just stack them.

6mm	12	H-1831	<b>\$1.25</b>
9mm	10	H-1832	<b>\$1.25</b>
12mm	8	H-1833	<b>\$1.25</b>
25mm	6	H-1834	<b>\$1.25</b>

The above units are 4BA (1/8") clearance hole 6mm OD.

The following units are hexagonal 4BA tapped 6mm OD.

9mm	6	H-1842	<b>\$1.25</b>
12mm	6	H-1843	<b>\$1.25</b>
25mm	4	H-1847	<b>\$1.25</b>



## INSULATED SPACERS

The ideal spacer for insulating the chassis from your PC board. They come complete with screws.

15mm	5	H-1862	<b>\$1.95</b>
25mm	4	H-1872	<b>\$1.95</b>



## CIRCUIT BOARD SUPPORTS

Designed to hold printed circuit boards in position with sufficient clearance above the chassis. They snap into place and can be easily installed or removed by hand. They require a 4mm hole in the PC board and a 4.75mm clearance hole in the chassis. Made of nylon.

9mm long 6 H-1981 **80c**

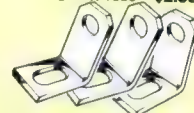


**IDEAL FOR HOLDING PCB'S TO CHASSIS!**

## RIGHT ANGLE BRACKETS

These brackets are made in England from mild steel with Cadmium plating. They are ideal for projects where right angle mountings have to be made. They have a 3mm clearance.

12mm 6 H-1895 **\$2.60**



## LED MOUNTING BEZELS - pack of 15



When making up projects that have LED power indication or otherwise why not 'dress' your LEDs for that added professional touch. They work out at less than 7c each!

Cat. H-1910..... pack of 15..... **95c**

## ASSORTED SPADE LUG PACK

Approximately 100 plated finish spade lugs which are ideal for a huge variety of hobbyist uses: speaker connections, earth terminals, automotive wiring, etc. They can be either crimped or soldered depending on the application. Range of sizes supplied.



**\$3.95**

Cat H-1994

## ASSORTED CRIMP LUG PACK

New addition to our pack range. 30 crimp lugs of various types, all with insulation already attached. Can be crimped with either a crimping plier or a pair of jaw pliers. 30 lugs and cable joiners in pack.



**\$2.80**

Cat H-1996



the smart way to buy your  
components. . .

## DICK SMITH BULK PACKS

**SAVE  
UP TO 50%.**



**YOU  
REAP  
THE  
BENEFIT!**



### Resistor Pack

COMPUTER  
SELECTED

300 computer  
selected 1/4W types

Ideal for the professional and  
the hobbyist. 60 values chosen  
by computer, quality 5%  
types, huge savings on  
normal prices: less than 3¢  
each.

Cat. R-7010

**WORTH \$12**

**\$5<sup>90</sup>**



### Metal Film Resistors

300 precision 1%  
1/4W metal film  
resistors.

Our 1% metal film types in a  
computer selected pack. Now  
there's no excuse not to use  
1% resistors in all your pro-  
jects: especially at this price!

Cat. R-7015

**WORTH \$18**

**\$9<sup>95</sup>**



### Greencap Pack

60 greencaps.

No weird rubbish values in  
this value pack of quality  
greencaps. 100 volt rating,  
selected values from .001µF  
— µF: 60 in all!

Cat. R-7040

**\$13 VALUE**

**\$8<sup>95</sup>**



### Electrolytic Pack

55 electros.

55 top quality single ended  
electrolytics: ideal for PCB  
usage. Save around \$7.00!  
2.2 to 470µF, voltages from  
10 to 25.

Cat. R-7030

**WORTH \$13-\$14**

**\$6<sup>75</sup>**



### Ceramic Pack

Over 60 ceramics.

Over 60 top quality ceramics,  
none less than 50VW, some  
as high as 630VW. Includes  
selection from complete range  
10pF to 0.1. Save a fortune!

Cat. R-7050

**\$7 VALUE**

**\$4<sup>75</sup>**



# In 1953 I built my first kit... I would still rather build a kit than buy ready-made because I know I'm saving money!

## Why build from a kit?

For the best reason: you'll save a fortune! You supply the labour, instead of paying for a production line (and the Managing Director's Ferrari). You can save 50% and more by building it yourself.

## Exclusive 'Sorry Dick It Doesn't Work' Guarantee.

On our major kits, we even include a repair service: if for some reason your kit fails to work, we will diagnose the faults and repair them for a lower than normal fixed service fee. This includes any parts you may have damaged during assembly. So you cannot fail with a Dick Smith Kit!

## Dick Smith's Money-back offer.

We're confident you'll be delighted with our kits. But if you're not (for any reason at all — even the fact that you might think construction is beyond you) you can return any kit to us in original condition and packaging (that is, before construction has commenced) and we'll refund your purchase price in full. What could be fairer than that?

## Can I do it?

Let's answer that one by asking you a question: can you read and follow simple instructions? If the answer is yes, then you can build our kits: most come with our exclusive step-by-step instructions. You can't go wrong!





# Components

## PANEL METERS

### STANDARD RANGE

A high quality range of moving coil meters, with a full scale accuracy better than 2%. Pre-calibrated in 5 popular varieties: easily adapted to suit virtually any requirement with shunts and multipliers. The scale area is covered in clear perspex, with the remainder of the meter body matte black. All meters have a fine needle for optimum accuracy in reading, and all have mechanical zero adjustment. Mounting is by four bolts (mounted on meter body) with nuts and washers supplied.

Dimensions:  
Scale area - 58 x 31mm  
Overall - 58 x 52mm  
Mounting:  
Hole required - 44mm  
Bolt holes: 38mm square

**\$9.95 ea**  
(10 or more \$8.95 ea)

**0-1mA**  
(100 ohms)

Cat Q-2100



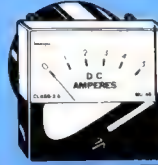
**0-50uA**  
(2400 ohms)

Cat Q-2020



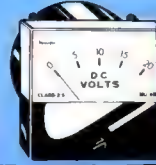
**0-5A**  
(3 ohms shunt)

Cat Q-2030

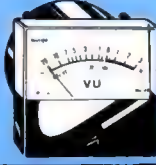


**0-20V DC**  
(100 ohms)

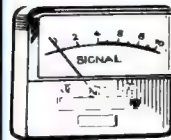
Cat Q-2040



**-20+30V**  
(1000 ohms)  
0dB=1mW/600 ohms  
Cat Q-2050

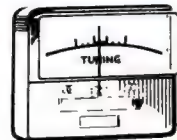


## LEVEL METERS



**Signal Strength**  
250uA FSD,  
scale labelled 1-10.

Cat Q-2100



**Tuning Centre Zero**  
Sensitivity is 250uA half FSD  
(in either direction).

Cat Q-2095

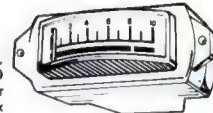
**Both types**

**\$5.55**  
(10 or more \$5.10 ea)

Particularly suitable for AM/FM tuner & receiver projects, but also ideal for a huge range of other projects. Meter scale size 35 x 15mm (same size as cut-out required); impedance 1k. Straw coloured meter face, look really great back-lit.

### Edge Level Meter

As used in many imported cassettes, amplifiers, etc. Graduated 1 to 10 with 'battery check' stripe under the main scale. Scale size 32 x 10mm, it is ideal for a fine level adjustment meter, audio or battery level, etc. Mounts with screws, hole centres 49mm. Cat Q-2110



**\$4.95**  
(10 or more \$4.20 each)

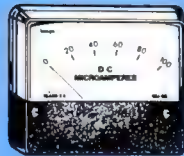
## LARGE PANEL METERS

In two styles - 100uA & 1mA. Larger style for larger projects. Size is 100 x 82mm, scale size 100 x 50mm. Requires a 63mm mounting hole, bolt centres 80 x 64mm. Nuts & washers provided.

**\$13.25**  
(10 or more \$11.95)



**0-100uA**  
(1100 ohms)  
Cat Q-2070



**0-1mA**  
(120 ohms)  
Cat Q-2080

## MOVING IRON RANGE

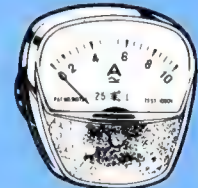
Rugged and accurate AC/DC meters ideal for power supplies, etc. Oval style meter, size approx 55mm wide x 58mm high.

**\$8.15 ea**  
(10 or more \$7.25 each)



**0-20V (AC & DC)**

Cat Q-2080



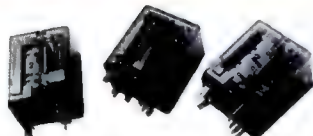
**0-10A (AC & DC)**

Cat Q-2090

## RELAYS

### CRADLE RELAYS

These are extremely small relays enclosed in transparent plastic cases. There are thousands of uses for these relays where low power switching is required. Insulation is effective up to 500V @ 50Hz. Operation time is typically 6-10ms and release time 3-4ms.



Gold flashed silver contacts  
handle 30W (1A or 100V)

Cat No	S-7012	S-7015	S-7017	S-7020	S-7025
Voltage	12 Volt	24 Volt	24 Volt	12 Volt	24 Volt
Contact Type	DPDT	DPDT	DPDT	4PDT	4PDT
Coil voltage - Min.	8V	11V	13V	8V	16V
Nom.	12V	24V	24V	12V	24V
Max.	17V	33V	30V	17V	33V
Coil Resistance	325 ohms	1600 ohms	430 ohms	185 ohms	700 ohms
Contact Assembly	2 C/O	2 C/O	2 C/O	4 C/O	4 C/O
Price Each	<b>\$8.50</b>	<b>\$8.50</b>	<b>\$5.95</b>	<b>\$9.50</b>	<b>\$9.50</b>
10 or more	<b>\$7.65</b>	<b>\$7.65</b>	<b>\$5.00</b>	<b>\$8.55</b>	<b>\$8.55</b>

### CRADLE RELAY SOCKETS

Silver plated socket to suit Cradle relays.

2 C.O. Type	4 C.O. Type
Cat. P-4732	Cat. P-4734
Price each: <b>\$2.20</b>	
10 or more: <b>\$1.95</b>	



## 12V AUTOMOTIVE RELAYS

### HORN RELAY

Heavy duty relay intended for use in 12 volt vehicle systems. Very high contact rating is ideal for horns, ignition disables, burglar alarms, etc. SPST contact.

3-7302  
Contact current (max): 20A  
Contact voltage (nom): 12V  
Nominal coil voltage: 12V  
Price each: **\$4.20**  
10 or more: **\$3.80**



### DOUBLE POLE LAMP RELAY

Very heavy duty relay, with double pole contacts each rated at a massive 30 amps. Ideal for such applications as QI driving lights - or wire both contacts in parallel for a huge 60 amps single pole relay!

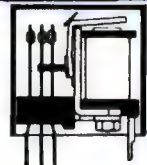
3-7304  
Contact current (max): 2x 30A  
Contact voltage (nom): 12V  
Nominal coil voltage: 12V  
Price each: **\$11.50**  
10 or more: **\$9.95**



## PCB MOUNTING RELAYS

Our most popular relay. Ideal for direct mounting on PCB's. Housed in plastic dustproof case. As used in a large number of EA & ETI projects.

	S-7125	S-7130
Contact current (max):	5A	5A
Contact voltage (max):	240V	240V
Nominal coil voltage:	12V	12V
Coil resistance:	180 ohm	200 ohm
	SPDT	DPDT
Price ea:	<b>\$6.99</b>	
10 or more:	<b>\$6.30</b>	

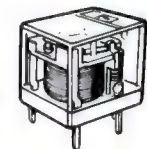


## MINIATURE

Small in size, but very handy contact rating! The silver plated SPDT contacts will handle up to a massive 2 amps (at 24V DC or 100V AC). Nominally 8 to 12V operating, but will work ok up to 15 volts.

	S-7120
Contact current (max):	2A
Contact voltage (max):	100V
Nominal coil voltage:	8-12V
Coil resistance:	225 ohm

Price ea: **\$2.25**  
10 or more: **\$2.00**

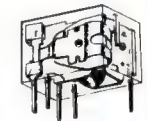


## ULTRA MINIATURE

A low cost miniature relay for those projects without a lot of room to spare. Fits a standard 2.54mm matrix (eg Vero or DIL boards) and 5V version interfaces with suitable buffer to TTL IC's. Maximum contact rating at 100V is 0.5A (resistive load). SPDT

	S-7105	S-7112
Contact current (max):	1A	1A
Contact voltage (max):	100V AC	100V AC
Nominal coil voltage:	5V	12V
Coil resistance:	56 ohm	320 ohm

Price ea: **\$2.95**  
10 or more: **\$2.45**



## EXTRA HEAVY DUTY PCB

High power rating - but a budget price! PCB mounting type has a massive 10A (120VAC) rating with double pole, double throw contacts. Operates from nominal 12 volts, so it's incredibly versatile too.

	10A
Contact current (max):	120V AC
Contact voltage (max):	12V
Nominal coil voltage:	160 ohm
Coil resistance:	
Price ea:	<b>\$3.50</b>
10 or more:	<b>\$3.00</b>

Cat S-7140



## HIGH RATING POWER RELAY

A small, but high capacity relay ideal for power switching with a massive contact rating of 10A. Great for switching 240V projects from transistor or IC control.

	S-7200
Contact current (max):	10A
Contact voltage (max):	240V
Nominal coil voltage:	12V
Coil Resistance:	160 ohm

Price ea: **\$9.75**  
10 or more: **\$8.80**





# Switches

## TOGGLE SWITCHES

### ULTRA-MINIATURE DPDT

The contact rating to size ratio is very high with this miniature toggle switch. Ideal for models, miniature portable instruments, or any use where a high quality miniature switch is required.

D.P.D.T. 125V AC 3A (240V AC 1.5A)  
Chrome toggle with colour insert body.  
Body size: 8mm x 9.3mm  
Clearance: 13.5mm  
Complete with 2 nuts and two washers.  
Gold plated connecting lugs.



**\$1.80**

Cat. S-1245.....  
**(10 or more \$1.60 each)**

### MINIATURE TYPES

MOST POPULAR RANGE — SPECIALLY IMPORTED —  
EXCELLENT QUALITY

Due to the quality of these switches they can be used in many applications

All feature: 125V AC 3A (240V AC 1.5A)  
Chrome toggle with colour insert  
Complete with two nuts and two washers  
Mounting hole size — 6mm

### SPDT

Body 8mm x 13mm, clearance 17mm

**\$1.60**

Cat. S-1173.....  
**(10 or more \$1.45 each)**



### DPDT

Body 13mm x 13mm, clearance 17.5mm

**\$2.45**

Cat. S-1174.....  
**(10 or more \$1.95 each)**



### DPDT, CENTRE OFF

Body 12mm x 12mm, clearance 20.5mm

**\$2.70**

Cat. S-1286.....  
**(10 or more \$2.45 each)**



### DPDT, CENTRE OFF, MOMENTARY ONE SIDE

As above S-1286 switch, but with a spring-return momentary position on one side

**\$2.70**

Cat. S-1287.....  
**(10 or more \$2.45 each)**



### 4PDT

Body 13mm x 21.5mm, clearance 20.5mm

**\$4.25**

Cat. S-1175.....  
**(10 or more \$3.95 each)**



### HEAVY DUTY DPDT

AMAZING CONTACT CAPACITY!

Although this switch is miniature in size, it offers an enormous contact to size ratio. Ideal for use where high power levels are involved and small size are of prime importance.

D.P.D.T.  
Features: 125V AC 10A (240V AC 5A)  
Chrome toggle with plastic cap  
Body size: 12mm x 12.5mm  
Clearance: 20.5mm  
Mounting hole: 6mm



**\$2.45**

Cat. S-1168.....  
**(10 or more \$2.20 each)**

NEW FOR

## DPDT MOMENTARY ACTION

Double pole, double throw with spring loaded momentary contacts. Rated at 12V, 20A — ideal for car electric aerial switch, etc. Standard 9mm mounting hole. Cat. S-1085



**ONLY \$2.80**

## ECONOMY STANDARD TOGGLE SWITCHES

### STANDARD SPST

A well designed switch in a bakelite case. It has a chrome toggle and is complete with two nuts and chrome ON/OFF indicator plate. Ideal for electric projects and automotive use.

Features: 125V AC 3A (240V AC 1.5A)  
Body size: 14mm x 26mm  
Clearance: 20.5mm  
Mounting hole: 12mm



Cat. S-1215.....  
**\$1.30**  
**(10 or more \$1.15 each)**

### STANDARD DPDT

Same general features as the above switch.

Features: 125V AC 3A (240V AC 1.5A)  
Body size: 18mm x 29.5mm  
Clearance: 23mm  
Mounting hole: 12mm

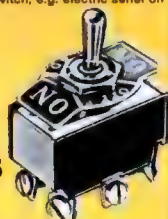


Cat. S-1216.....  
**\$1.80**  
**(10 or more \$1.65 each)**

### STANDARD DPDT, CENTRE OFF

Rugged bakelite case, chrome toggle, red and black ON/OFF/ON indicator plate and heavy duty solder lug terminals. This switch features heavy duty contact rating. Makes ideal motor reversing switch, e.g. electric aerial on cars.

Features: 125V AC 6A (240V AC 3A)  
Body size: 20mm x 35mm  
Clearance: 26mm  
Mounting hole: 12mm



Cat. S-1217.....  
**\$2.25**  
**(10 or more \$2.00 each)**

### 'PIANO KEY' DPDT

Ideal for audio and electronic projects. Superbly engineered and has a white toggle.

Features: 240V AC 3A  
Mounting hole: 18mm  
Clearance: approximately 15mm  
Body size: 20mm x 30mm



Cat. S-1393.....  
**\$3.10**  
**(10 or more \$2.70 each)**

### ILLUMINATED SPST (12V)

Intended for automotive use. The soft glow from the toggle is not distracting in night driving, but means the switch can quickly be located. 12V lamp operates from supply being switched.

Feature: 12V DC, 16A contacts  
9mm mounting hole  
Body size: 28 x 15mm



Cat. S-1214.....  
**\$2.95**  
**(10 or more \$2.65 each)**

## PUSH BUTTON SWITCHES

### SPST 'LAMP SWITCH'

Has many, many uses but is ideally suited to replacement of desk light switches.

S.P.S.T. 240V AC 1 AMP



Cat. S-1205.....  
**\$1.40**  
**(10 or more \$1.25 each)**

### ILLUMINATED SP MOMENTARY

These are all plastic body with red illuminated pushbutton bezel. To fit into your project just push into the right size hole and they will snap fit.

Features: 125V AC 1A (240V AC 0.5A)  
body size: 18mm x 18mm  
Clearance: 34mm  
Hole cut out size: 18.5mm x 18.5mm  
Indicator lamp: 6.3V



Cat. S-1078.....  
**\$2.20**  
**(10 or more \$2.00 each)**

### MINIATURE SP - NORMALLY OPEN

These miniature switches are push-on momentary action. They feature a coloured plastic cap.

Features: 125V AC 1A (240V AC 0.5A)  
Body size: 28.5mm x 10mm  
Clearance: 15mm  
Hole size: 7mm



Cat. S-1102.....  
**50¢**  
**(10 or more 45¢ each)**

### SP ALTERNATE ACTION

The Professional Miniature!

Ideal for equipment where space is very limited. It features a positive push on/push off action. The actuating black plastic button is 10mm in diameter.

Features: 125V AC 3A (240V AC 1.5A)  
Body size: 11.5mm x 11.5mm  
Clearance: 22mm  
Hole size: 6mm



Cat. S-1197.....  
**\$2.45**  
**(10 or more \$2.20 each)**

### DPDT MOMENTARY ACTION

This is an exceptionally high quality pushbutton switch featuring precise micro switch type action. The plastic actuator button is small to conserve space whereby you can stack these switches side by side etc. Ideal for computer program switch.

Features: 125V AC 3A (240V AC 1.5A)  
Body size: 13mm x 13mm  
Clearance: 14.5mm  
Hole size: 6.5mm



Cat. S-1220.....  
**\$2.50**  
**(10 or more \$2.25 each)**

### SP ALTERNATE ACTION

This switch features a beautiful red 11mm square actuating button in an all black plastic case. Makes an excellent mains switch for projects.

Features: 125V AC 6A (240V AC 3A)  
Body size: 15mm square  
Clearance: 28mm  
Hole size: 12mm



Cat. S-1198.....  
**\$2.00**  
**(10 or more \$1.80 each)**

### SP MOMENTARY ACTION

As above switch, Cat. S-1198, but with momentary action push-on.

Features: 125V AC 6A (240V AC 3A)  
Body size: 15mm square  
Clearance: 28mm  
Hole size: 12mm



Cat. S-1199.....  
**\$1.85**  
**(10 or more \$1.65 each)**



## SLIDE SWITCHES

### SUB MINIATURE DPDT

COUNTLESS APPLICATIONS — AMAZING LOW PRICE!  
Sub-miniature type suitable for many types of projects, etc. So low in price it can be used for experimental projects without regard to cost! Actuator is in black plastic.

Features: Mounting: 19mm centre  
Clearance: 12mm  
Body size: 8mm x 23mm



**45¢**

Cat. S-2010.....  
(10 or more 40¢ each)

### SUB MINIATURE DPDT

Same as the S-2010 but features an attractive spun aluminium actuator with black insert.

**55¢**



Cat. S-2020.....  
(10 or more 50¢ each)

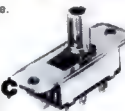
### MINIATURE DPDT

ATTRACTIVE — LOW COST

This miniature switch has a spun aluminium actuator with black insert. Larger and heavier duty than the sub-miniature range.

Features: Mounting: 28mm centres  
Clearance: 14mm  
Body size: 35mm x 13mm

**70¢**



Cat. S-2040.....  
(10 or more 60¢ each)

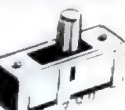
### MINIATURE DP3T

SPUN ALUMINIUM ACTUATOR

A versatile switch ideally suited to audio applications and for instruments.

Features: Mounting: 19mm centres  
Clearance: 13mm  
Body size: 8mm x 24mm

**85¢**



Cat. S-2030.....  
(10 or more 75¢ each)

### MINIATURE SP6T

A printed circuit board mounting switch with a massive 6 positions. Each position has a positive location to avoid problems.

Features: Mounting: 27mm centres  
Clearance: 18mm  
Body size: 8mm x 33mm

**90¢**



Cat. S-2050.....  
(10 or more 80¢ each)

### MINIATURE SP4T

As above, but with four positions. Ideal for input selection on printed circuit boards.

Features: Mounting: 19mm centres  
Clearance: 12mm  
Body size: 8mm x 25mm

**80¢**



Cat. S-2060.....  
(10 or more 70¢ each)

### 4PDT TOGGLE LEVER ACTION

This switch gives the smooth action of a slide switch but is actuated by an attractive spun aluminium toggle with coloured insert. Great for amplifier changeover switches because of their small size and attractive finish.

Features: 4 P.D.T.  
Mounting: 27mm centres  
Clearance: 19mm  
Body size: 9mm x 34mm

**\$1 60**



Cat. S-1301.....  
(10 or more \$1.45 each)

## SCREW PACKS FOR SLIDE SWITCHES

Small Philips suits S-2010, S-2020, S-2030.

Cat. H-1674..... Pack of 10.....

Large Philips suits S-2040, S-1301

Cat. H-1672..... Pack of 10.....

**50¢**

**50¢**

## ROCKER SWITCHES

### ILLUMINATED DPDT (240V Neon lamp)

Positive action, handsome black body, bright red illuminating rocker switches, 15 AMPS!!! The terminating lugs on this switch will accept standard utilux spade clips. Mounting is push in snap lock.

Features: 240V AC 15A  
Body size: 23mm x 30.5mm  
Clearance: 30mm  
Hole cut out size: 22mm x 27mm



**\$2 95**

Cat. S-1506.....  
(10 or more \$2.65 each)

### 12V VERSION:

Cat. S-1507..... 12V VERSION..... **\$2.60**  
(10 or more \$2.35 each)

### ILLUMINATED SPDT (240V Neon lamp)

Attractive oblong shape black switch with red illuminating rocker. Terminal lugs accept utilux spade quick connectors. Mounting is snap lock.

Features: 240V AC 12A  
Body size: 19mm x 40.4mm  
Clearance: 29.5mm  
Hole cut out size: 12.5mm x 37.5mm



**\$2 30**

Cat. S-1503.....  
(10 or more \$2.05 each)

## 8-WAY PCB DIL SWITCH

8 SPST rocker switches mounted in a DIL package. Designed for PCB mounting and may be placed in blocks or rows without wasting space. Use for pre-programming, changing circuit constants and many more uses.

**\$3 10**



Cat. S-1608.....  
(10 or more \$2.80 each)

## SPDT MICROSWITCH

Being a micro switch action this unit is a must where a positive snap action is required. Great for burglar alarms or as machinery limit switches. Complete with 16mm actuator paddle.

Features: 240V AC 10A contact rating  
Body size: 10.5mm x 28mm  
Quick connect terminals.



**\$1 80**

Cat. S-1920.....  
(10 or more \$1.60 each)

## DPDT 'KNIFE' SWITCH

Popular in the old days for earthing 'wireless aereals' or disconnecting the aerial and earth system from the wireless set. It can be used for exactly the same job today as an aerial changeover switch. Use it in country areas for changing from one TV antenna to another etc.



**\$1 15**

Cat. S-1930.....  
(10 or more \$1.05 each)

## ROTARY SWITCHES

Dick Smith rotary switches are precision made to our exacting specifications. They feature easy-to-solder lugs (which can also be used for PCB mounting because of their small size); with up to 12 positions or 6 poles on one switch plate. The switch shaft is the now standard fluted 6mm type which accepts any of our standard metric range of knobs. Imperial knobs can be used if required for matching purposes by means of a small piece of shim brass or copper, etc). Each switch comes complete with a matching washer and nut.

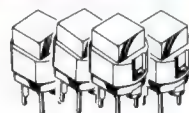
Body size: 30 x 25mm  
Shaft length: 15mm  
Shaft dia. 6mm

**\$1 50** each  
(10 or more \$1.30 each)

Manufacturers ask about our big discounts for large quantity purchases. You could be pleasantly surprised!

## PACK 4. PUSH BUTTONS

Ideal for mounting on PCB's. These are momentary PUSH ON switches that have a positive click action. Ideal for alarm circuits, intercoms, custom keyboards etc.



Pack of 4 **\$3 10**

Cat. S-1200.....

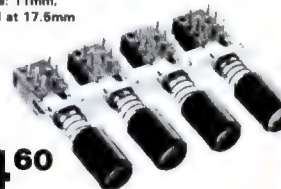
(10 packs or more \$2.80 each)

## 4-WAY SWITCH BANK

HIGHEST QUALITY — HUNDREDS OF USES — LOW PRICE

This switch is ideal for audio switching in kit type amplifiers or similar applications. Each individual switch section is D.P.D.T. and is mechanically interlocked so that only one press button can be on at one time.

Features: Mounting centres: 75mm  
Clearance: 22mm  
Pushbutton size: 11mm,  
centres spaced at 17.5mm



**\$4 60**

Cat. S-1904.....  
(10 or more \$4.15 each)

## SINGLE DPDT

Same high quality as the above switch bank, same features and functions. Just one of the above switches.

Cat. S-1906..... ~~was \$2.95~~ **\$2 10**  
(10 or more \$1.90 each)

## MERCURY 'TILT' SWITCH

LOW COST — HIGH RELIABLE — PERFECT FOR ALARMS

This is essentially a movement detecting switch. It is operated by changing the horizontal plane. A 'ball' of mercury runs from one end of the elongated tube to the other as the position is changed. One end has a set of contacts that 'make' with the mercury. It is basically a low current device but is suitable for such uses as movement detectors for car or bike alarms.

**\$1 35**

Cat. S-1935.....  
(10 or more \$1.20 each)

## COIL & REED SWITCH

These are a matched reed-coil assembly suitable for low level switching. The reed switch is unaffected by external environment conditions. Ideal for experimenters. 430 ohm coil operates from 6 to 15 volts DC.



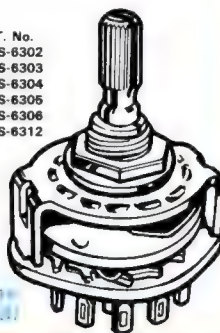
COIL  
Cat S-1948



REED:  
Cat S-1946

**\$1 00**  
(10 or more 90¢ each)

**60¢**  
(10 or more 55¢ each)





# Plugs & sockets

## RCA

### PLUGS

Red P-1420  
Black P-1422

**40¢** (10 up 35¢)

### LINE SOCKETS

Red P-1410  
Black P-1412

**45¢** (10 up 35¢)

### PANEL SOCKETS

Single P-1440

**80¢** (10 up 70¢)

Single, Screw mount P-1430

**50¢** (10 up 45¢)

Stereo P-1442

**75¢** (10 up 65¢)

4 WAY  
P-1444

**\$1.25** (10 up \$1.10)

6 WAY  
P-1446

**\$1.70** (10 up \$1.50)

## DC POWER

STAR PLUG  
P-1670

2.5 & 2.1mm (as above), plus 2.5 & 3.5mm phono type all on one unit

**\$1.85** (10 up \$1.48)

2.1mm PLUG  
P-1641

**45¢** (10 up 40¢)

2.5mm PLUG  
P-1645

**45¢** (10 up 40¢)

2.5mm SOCKET  
P-1665

**65¢** (10 up 60¢)

2.1mm SOCKET  
P-1661

**75¢** (10 up 70¢)

## DIN

2 PIN LINE PLUG  
P-1520

**60¢** (10 up 50¢)

2 PIN PANEL SOCKET  
P-1522

**45¢** (10 up 40¢)

2 PIN LINE SOCKET  
P-1524

**45¢** (10 up 40¢)

3 PIN LINE PLUG  
P-1530

**65¢** (10 up 60¢)

5 PIN LINE PLUG  
P-1550

**85¢** (10 up 80¢)

5 PIN PANEL SOCKET suit  
P-1550

P-1552

**85¢** (10 up 80¢)

5 PIN LINE SOCKET suit  
P-1550

P-1554

**90¢** (10 up 80¢)

## CANNON

3 PIN LINE SOCKET  
P-1620

**\$3.95** (10 up \$3.45)

3 PIN PANEL PLUG  
P-1622

**\$3.75** (10 up \$3.25)

3 PIN LINE PLUG  
P-1624

**\$3.75** (10 up \$3.25)

3 PIN PANEL SOCKET  
P-1626

**\$4.20** (10 up \$3.75)

## PHONO

2.5mm SUB MINI  
PLUG SOCKET

Cat P-1125 Cat P-1220

**30¢** (10 up 26¢) **25¢** (10 up 23¢)

3.5mm MINIATURE  
PLUG SOCKET

Red P-1132 Black P-1134 P-1231

**40¢** (10 up 35¢) **35¢** (10 up 30¢)

STEREO PLUG

P-1140

**75¢** (10 up 70¢)

STEREO SOCKET

P-1240

**95¢** (10 up 90¢)

LINE SOCKETS  
Red P-1234  
Black P-1236

**40¢** (10 up 36¢)

STEREO LINE SOCKET  
P-1238

**80¢** (10 up 70¢)

6.5mm STANDARD  
PLUG SOCKET

P-1160 P-1261

**65¢** (10 up 55¢) **70¢** (10 up 60¢)

METAL PLUG AVAILABLE:  
P-1162 **\$1.20 ea.** (10 up \$1.10)

STEREO PLUG

P-1166

**95¢** (10 up 85¢)

STEREO SOCKET

P-1266

**80¢** (10 up 72¢)

METAL STEREO PLUG AVAIL:  
P-1168 **\$1.20** (10 up \$1.10)

LINE SOCKETS  
Mono: P-1264

**80¢** (10 up 72¢)

Stereo: P-1286

**85¢** (10 up 75¢)

STEREO PANEL SOCKET WITH  
DPDT SWITCH

Ideal for headphone sockets.

Cat P-1276

**95¢** (10 up 85¢)

## BANANA

4mm PLUGS  
RED P-1710  
BLACK P-1712  
YELLOW P-1714  
GREEN P-1716

**35¢** (10 up 30¢)

4mm SOCKETS  
RED P-1720  
BLACK P-1722

**45¢** (10 up 40¢)

4mm SOCKET WITH  
BINDING POST  
RED P-1730

BLACK P-1732  
YELLOW P-1734  
GREEN P-1736

**60¢** (10 up 55¢)

## MICROPHONE

4 POLE  
METAL PANEL MT.  
PLUG

P-1824

**\$1.50** (10 up \$1.20)

LINE SOCKET  
suit P-1824

P-1834

**\$1.95** (10 up \$1.55)

2 POLE  
HEAVY DUTY METAL  
PLUG & SOCKET

P-1860

**\$3.25**

**\$2.90**

## CRYSTAL SOCKET

TYPE K SMALL  
P-4720

**55¢** (10 up 50¢)

## CO-AXIAL TV

PLASTIC LINE PLUG  
P-2021

**45¢** (10 up 40¢)

METAL LINE PLUG  
P-2020

**\$1.20** (10 up \$1.08)

METAL LINE SOCKET  
P-2030

**\$1.40** (10 up \$1.26)

PLASTIC LINE SOCKET  
P-2031

**95¢** (10 up 80¢)

PANEL SOCKET  
suit P-2020

P-2040

**95¢** (10 up 85¢)

LINE ON PANEL JOINER  
suit P-2020

P-2070

**\$1.10** (10 up \$1.00)

## 300 OHM TV

WALL SOCKET  
P-2080

**\$1.85**

PLUG for P-2080

P-2082

**90¢** (10 up 85¢)

## BNC

BNC LINE PLUG  
suitable for  
RG58RU cable

P-2210

**\$2.75** (10 up \$1.95)

BNC PANEL SOCKET  
accepts P-2210

P-2220

**\$2.20** (10 up \$1.95)

## UHF

PL 259  
coax line plug to  
connect antenna/ancillary  
equipment to rig  
P-2310

**\$1.50** (10 up \$1.30)

REDUCING ADAPTOR

No soldering required,  
use with PL 259 to  
give tight fit for  
50 ohm co-ax

P-2360

**40¢** (10 up 35¢)

PL 259  
suits RG-58 coax  
without the need  
for a reducer

P-2312

**\$1.25** (10 up \$1.00)

SO 239 NO SOLDERING  
joiner. Two sockets  
back to back for use  
with PL-259

P-2380

**\$1.95** (10 up \$1.65)

JOINER

SO-239 to accept PL 259 plug

Screw type mounting  
to chassis

P-2342

**\$1.25** (10 up \$1.05)

PANEL MOUNTING  
SO-239 to suit PL 259.

P-2340

**\$1.20** (10 up \$1.00)

T-CONNECTOR  
with PL 259 plug  
and 2 SO 239 sockets.

P-2384

**\$3.95** (10 up \$3.50)

RIGHT ANGLE  
with SO 239 socket  
& PL 259 plug.

P-2382

**\$2.50** (10 up \$2.20)

## CAR RADIO ANTENNA

ANTENNA  
PLUG  
P-2000

**45¢** (10 up 40¢)

ANTENNA  
SOCKET  
P-2004

**45¢** (10 up 40¢)



## MULTI PIN PLUGS AND SOCKETS

2 PIN LINE PLUG  
P-3110

**60¢** (10 up 55c)

2 PIN CHASSIS SOCKET  
FOR P-3110  
P-3115

**65¢** (10 up 60c)

4 PIN LINE PLUG  
P-3120

**50¢** (10 up 45c)

5 PIN LINE PLUG  
P-3125

**60¢** (10 up 50c)

5 PIN CHASSIS  
SOCKET FOR P-3120 &  
P-3125  
P-3135

**60¢** (10 up 50c)

COVER FOR P-3120  
& P-3125  
P-3140

**30¢** (10 up 25c)

8 PIN CHASSIS SOCKET  
P-3025

**\$1.15** (10 up \$1.05)

8 PIN LINE PLUG  
WITHOUT COVER  
P-3010

**\$1.15** (10 up \$1.05)

9 PIN PLUG &  
SOCKET ASSEMBLY  
P-1910

**\$1.60** (10 up \$1.40)

Complete with covers

## CONNECTOR TERMINALS

Red and black plastic covered  
spring loaded terminals for  
instant connect and disconnect  
with solder lug on underside of  
phenolic mounting board.

4 WAY P-1765

**\$1.20**

(10 up \$1.10)

2 WAY

P-1764

**65¢**

(10 up 60c)

## QUICK CONNECT

QUICK CONNECTOR  
P-5012

**80¢** (Pack of 10)

MALE CONNECTOR  
for P-5012  
P-5016

**80¢** (Pack of 10)

COVER For P-5012 & P-5016  
P-5022

**80¢** (Pack of 10)

DOUBLE ADAPTOR  
P-5026

**80¢** (Pack of 6)

ROUND LUG 3/16" HOLE  
P-5032

**80¢** (Pack of 12)

MINI CONNECTOR  
P-5036

**80¢** (Pack of 15)

BULLET TERMINAL (Male)  
P-5006

**95¢** (Pack of 10)

PLASTIC COVER TO  
SUIT ABOVE  
P-5007

**50¢** (Pack of 10)

BULLET TERMINAL  
(Female)  
P-5008

**95¢** (Pack of 10)

PLASTIC COVER TO  
SUIT ABOVE  
P-5009

**50¢** (Pack of 10)

## SOLDER LUGS

ASSORTED SOLDER  
LUG PACK  
SINGLE & DOUBLE ENDED  
TYPES 65mm HOLE  
P-5044

**80¢** (Pack of 50)

## CAR CIG LIGHTER PLUG

Extremely handy for  
operating recorders or  
any other 12 volt  
appliances in your car  
P-1675

**80¢**  
10 up 70c

## AUDIO PLUG ADAPTORS

6.5mm SOCKET TO 3.5mm  
PLUG  
P-6510

**\$1.00** (10 up 90c)

3.5mm STEREO SOCKET TO  
6.5mm STEREO PLUG  
P-6500

**\$1.00** (10 up 90c)

6.5mm STEREO SOCKET TO  
3.5mm PLUG  
P-6570

**\$1.00** (10 up 90c)

6.5mm STEREO SOCKET TO  
6.5mm PLUG  
P-6580

**\$1.00** (10 up 90c)

P-6570 & P-6580 are ideal for  
operating stereo headphones  
from mono cassette units and  
communications receivers.

RCA SOCKET TO 6.5mm PLUG  
P-6530

**\$1.00** (10 up 90c)

6.5mm SOCKET TO RCA PLUG  
P-6550

**\$1.00** (10 up 90c)

3.5mm SOCKET TO RCA PLUG  
P-6540

**\$1.00** (10 up 90c)

RCA SOCKET TO 3.5mm PLUG  
P-6560

**\$1.00** (10 up 90c)

6.5mm STEREO SOCKET TO  
3.5mm STEREO PLUG  
P-6505

**\$1.00** (10 up 90c)

3.5mm SOCKET TO 6.5mm  
PLUG  
P-6520

**\$1.00** (10 up 90c)

## COMPUTER CONNECTORS

EDGE CONNECTOR S-100 BUS  
Standard 100 pin socket for S-100  
High contact life for maximum  
efficiency.

P-2670 **\$9.50**  
(10 up \$8.50)

'D' TYPE PLUG  
25 pin plug for RS-232C port and  
Sorcerer parallel port.

P-2690 **\$3.95**  
(10 up \$3.45)

'D' TYPE SOCKET  
25 pin socket for RS232C port  
and Sorcerer parallel port.

P-2691 **\$4.75**  
(10 up \$4.45)

PRINTER PLUG  
57N-36 type, suits most printers.  
With cover.

P-2680 **\$19.95**

BACKSHELL FOR P-2690

P-2692 **\$2.95**  
(10 up \$2.75)

## MULTI PIN PLUGS AND SOCKETS

Inexpensive Australian made  
connectors with gold plated  
contacts rated up to 5A and  
1000V. The ingenious design  
enables the connectors to be  
adapted from panel mounting  
for line use simply by fitting a  
cover.

23 WAY PLUG  
P-2700

**\$4.25**

(10 up \$3.95)

23 WAY SOCKET  
P-2710

**\$4.25**

(10 up \$3.95)

COVER TO SUIT BOTH  
P-2740

(10 up \$5.45)

**\$5.95**

## IC SOCKETS

SEE OUR FULL  
RANGE OF  
IC SOCKETS

**Page 124**

## EDGE CONNECTORS

EDGE CONNECTOR  
Designed for conventional  
'plug-in' connection of 1/16"  
thick PC or Dick Smith strip  
board. Gold plated tintillate  
bronze contacts, rated at 5A  
DC standard 0.1" spacing.  
Comes complete with mount-  
ing feet & polarising key.



16 way edge connector.  
P-2816

**\$3.55** (10 up \$3.25)

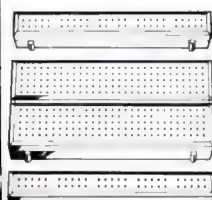
24 way edge connector  
P-2824

**\$4.85** (10 up \$4.45)

## PROTOTYPE ASSEMBLY BOARDS

### PROTO BOARD

Now circuit designing is as  
easy as pushing a lead into a  
hole. No soldering, no de-  
soldering, no heat spoil com-  
ponents, no wasted time.  
Designed to accept transistors,  
IC's LSI packages, resistors,  
capacitors, LED's, trimmers,  
relays etc. Base board has  
290 holes and pack in-  
cludes two clip-on extensions  
each of 50 holes. 390 holes  
in all and you can add on as  
many more as you require.

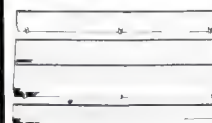


**\$9.20**

### PROTO BOARD GL12

Now a 'jumbo' version of the  
above—for those of you who  
can't keep your projects  
down to a couple of IC's or  
so. This board is similar to  
the above, but has 128  
groups of 5 connected ter-  
minals plus 8 bus lines with  
25 connected terminals.  
Size is 175 x 67 x 8mm.

Cat P-4615



**\$12.95**

## TERMINALS ETC

### BARRIER STRIPS

Each terminal has two screws  
and two pre-tinned solder  
lugs. Mounting screw holes  
each end of the tough plastic  
base.



4-way Cat H-6704

1-9 ..... \$1.20  
10 or more ..... \$1.10

8 way Cat H-6708

1-9 ..... \$2.20  
10 or more ..... \$2.10

12-way Cat H-6712

1-9 ..... \$3.25  
10 or more ..... \$3.00

### TAG STRIPS

Pre-tinned solder lugs firmly  
attached to phenolic board.  
The centre lug extends to a  
foot, to make a convenient  
earth bracket.



3-lug Cat H-6403

1-9 ..... 15c  
10 or more ..... 12c

5-lug Cat H-6405

1-9 ..... 20c  
10 or more ..... 15c

7-lug Cat H-6407

1-9 ..... 25c  
10 or more ..... 20c

### MAINS TERMINAL BLOCKS

With nylon, mains terminal  
strip, two screws per termi-  
nal, a twelve way, or by cut-  
ting the strip, any number of  
terminals. 240V AC rating.

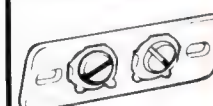
Cat H-6700



1-9 ..... \$1.30  
10 or more ..... \$1.10

### SCREW TERMINALS

Popular strips with screw  
terminals on one side of the  
phenolic strip with a mount-  
ing hole at each end.



2-way Cat H-6622

1-9 ..... 32c  
10 or more ..... 28c

4 way Cat H-6624

1-9 ..... 65c  
10 or more ..... 55c



# 240V Products

## AIRONIC AIR IONISER

Incredible claims have been made about the therapeutic effects of negative ions. Here's the latest model from one of Australia's leading manufacturers. It plugs into the normal 240V outlet, and uses virtually no electricity (not even enough to turn the meter!) Guaranteed NOT to produce harmful Ozone (beware of ionizers which do not give this guarantee!) Cat Y-9000

was  
**\$85.00**  
NOW  
**ONLY \$69.00**



### 3 PIN PLUG

**\$1.30**



The standard Australian 3-pin AC plug - it has locking collar to hold cable tight and push fit cover to main body. Cat P-5400.

### 3 PIN PIGGY-BACK PLUG

**\$2.20**



Standard 3-pin plug with 3-pin socket as well - doubles up one power point. Cat P-5405.

### LINE SOCKET

Ideal for making up extension cords - standard 3 pin AC socket. Cat P-5410.

**\$2.30**



### SUPPRESSOR PLUG

Standard 3 pin AC plug with capacitor fitted to remove unwanted pops and crackles from audio equipment. Cat P-5425.

**\$5.20**



### 3 PIN PLUG - SIDE ENTRY

Standard 3 pin AC plug with cable entry on the side - ideal for using with awkward equipment Cat P-5402

**\$1.20**



### SURFACE SOCKET

Standard 3 pin AC socket that can be screwed to boards or walls - ideal for workshop use. Cat P-5415

**\$1.75**



### LINE SOCKET

Line socket for bayonet mount lamps. Ideal replacement for light fittings. Comes in white plastic. Cat P-5510.

**\$1.50**



### LINE SWITCH

High impact plastic moulded switch for insertion in any cord for remote on/off. Ideal for putting on/off switch in a floor standing lamp. Cat P-5515

**\$3.25**



### ARCHITRAVE SWITCH

Standard architrave switch - can be used to replace old, worn out units in your home. Positive action switching. Cat P-5570.

**\$2.60**



### SINGLE POWER POINT

Standard 240V wall mounting, switched AC outlet plate. Cat P-5550

**\$4.95**



### DOUBLE POWER POINT

Replace old single outlets with a double, much more convenient! Cat P-5560

**\$6.60**



### POWER POINT SAFETY TESTER

Check newly installed power points, old homes, etc. Just plug in and light pattern reveals any faults Cat P-5300

**\$4.95**



### DOUBLE ADAPTOR

Standard 3 pin AC plug into 2 AC sockets enabling you to use 2 appliances on one out let. Cat P-5440.

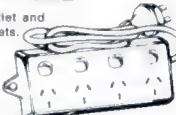
**\$2.75**



### 4-WAY POWERBOARD

Plug into any 240V outlet and have four switched outlets. Cat P-5610

**\$24.75**



### EXTENSION CORDS

3 metres of 3 core cable, already fitted with plug and socket. 7.5A rating. Cat P-5590

**\$4.25**



### CHILD-PROOF PROTECTOR

**45c**

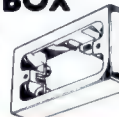
AC sockets are normally placed in a position whereby young children have access. Stop their prying fingers by placing these plastic safety plugs into the outlet when not in use. Very hard for children to remove. Cat P-5420.



### STANDARD MOUNTING BOX

Mount power points, plates, etc on any surface including brick Cat P-5531

**\$1.75**



### JUNCTION BOX

Standard electrical wiring junction box - with connectors. Cat P-5625

**\$3.20**



### BLANK PLATE

Same size as power point, but blank ideal for gap-filling when you move points, switches etc. Cat P-5535



**\$1.95**

### WALL BOARD CLIP

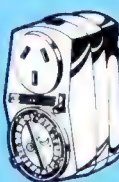
Mount power outlets, switch plates, etc on any cavity wall (other than brick) without the need for a mounting box Cat P-5530

**95c**



## ARLEC SUPER SWITCH

Here's a way you can save a fortune in power bills: use this superb time switch to turn devices off when they don't need to be on! Think of the applications: pool filters, air conditioners, exterior lights, advertising displays - the list is endless! And the super switch has many security applications, too: give your house a 'lived in' appearance when you're away! Handles 10 amps. Cat Y-1120

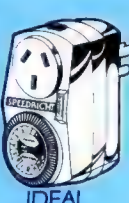


**\$24.50**

## ARLEC SPEEDRIGHT

Need speed control - for electric drills, fans, machines, etc? How about a light dimmer or heater control? You've got it all with the Speedright. Just plug it in to a power point, plug the appliance in - and adjust the dial to the speed/level required. Handles up to 1000 watts (4.2A), fully SEC approved. Cat Y-1110 (Not suitable for induction motors)

Ideal for all brush-type 'universal' motors

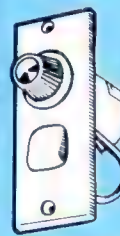


IDEAL PLUG-IN LAMP DIMMER

**\$27.50**

## LIGHT DIMMER

Easy to install light dimmer - simply replaces existing light switch in wall cavity. Set the mood you want by the amount of light in the room. AND you can save on power-bills, too. This dimmer comes with full instructions for easy installation; is already fitted with internal radio frequency suppression to reduce or eliminate interference. Handles up to 500 watts of incandescent lamps (not suitable for fluorescents) Cat Y-1112



**\$8.50**

## ROTARY BLOWER FAN

Getting a bit hot under the collar? Use one of these superb rotary fan! Fantastic for any device which needs forced air cooling - they can be used for sucking or blowing. Exactly the same dimensions & mounting centres as those other brands you'd pay \$555 more for! 240V motor. Cat Y-8500



**\$19.95**

## FUSES

Full range of fuses in both popular styles: M-205 mini (approx 20 x 5mm) and the popular 3AG (approx 32 x 5mm). Remember, the lower the current rating of the fuse you use, the greater the protection afforded.

All fuses 'fast blow' type for greatest protection.



ALL ONE PRICE:  
**25c**  
(10 or more 20c)

3AG TYPE	
100mA	S-4449
150mA	S-4451
250mA	S-4453
350mA	S-4455
500mA	S-4457
1A	S-4461
1.5A	S-4465
2A	S-4467
3A	S-4469
5A	S-4471
7.5A	S-4473
10A	S-4475
15A	S-4477
20A	S-4479
25A	S-4481
30A	S-4485
35A	S-4487

M-205 TYPE	
Rating	Cat No
250mA	S-4412
500mA	S-4415
1A	S-4421
2A	S-4423
5A	S-4425

## FUSE HOLDERS

35c each  
(10 or more 30c)



Easy to mount fuseholders in both popular sizes to suit 3AG or M205 fuses  
Suit 3AG Cat S-4254 Suit M205 Cat S-4258

### BAYONET HOLDER (3AG)



Chassis or panel mounting fuse holder, accepts standard 3AG fuse 13mm mounting hole required  
Cat. S-4206 ..... 1-9 ..... 85c ea  
10 or more ..... 75c ea

### SAFETY FUSE HOLDER (3AG)

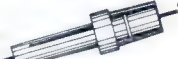


This is a professional looking black square panel mounting fuse holder with a coloured 'push-in' insert. The fuse carrying insert is released at the touch of a finger for easy replacement of blown fuses. The insert can not fall out of its own accord. Gives projects a modern finish

Cat S-4204 ..... 1-9 ..... \$1.15  
10 or more ..... \$1.00

### IN-LINE HOLDER (3AG)

90c each  
(10 or more 75c)



Protection for car radios, stereos, transceivers, etc. All plastic casing, takes standard 3AG fuse, with spring loaded contacts for positive connection. Complete with 600mm lead at no extra charge. Cat S-4277

## 3AG FUSE CLIPS (pack of 8)



These fuse clips are ideal for mounting on PC boards providing flexibility and extremely good value

Cat. H-1700 ..... pkt of 8 ..... 90c ea

## HANDY FUSE WIRE PACK



Great for keeping a card of in the fuse box - just in case! Card of 5, 10 and 15 amp fuse wire

Cat W-3180 ..... 35c



# Wire & Cable

## HOOK-UP WIRE



**FLEXIBLE  
LIGHT DUTY**  
(10x 0.12mm)

PVC insulated wire that is ideal for the hobbyist. Ideal for home brew projects etc. 12 individual colours available - saves confusion.

W-2220 Red W-2224 Yellow W-2228 Blue  
W-2221 Black W-2225 Green W-2229 Grey  
W-2222 Brown W-2226 Dark Blue W-2230 Cream  
W-2223 Orange W-2227 Purple W-2231 White

ALL COLOURS

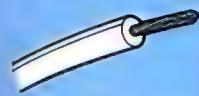
Bulk price 100m or more ..... 10c/m  
8c/m



**MEDIUM  
DUTY**  
(10 x 0.2mm)

Slightly thicker than the above wires, fully tinned and insulated. Available in Red and Black.

Red Cat. W-2240 Black Cat. W-2242  
Both Colours ..... 15c/m  
Bulk price 100m or more ..... 12c/m



**HEAVY  
DUTY**  
(24 x 0.2mm)

24 x 0.2mm (23/0076). Rated at 240V AC, 7.5 amps. Available in red, black and green.

Red Cat. W-2260 Black Cat. W-2262 Green Cat. W-2264

ALL COLOURS

20c/m  
Bulk price 100m or more ..... 17c/m



**ULTRA  
HEAVY  
DUTY**  
(32 x 0.2mm)

32 x 0.2mm (40/0076). Rated at 240V AC, 10 amps. Available in brown and blue.

Brown Cat. W-2280 Blue Cat. W-2282  
Both Colours ..... 30c/m  
Bulk price 100m or more ..... 25c

## RAINBOW CABLE

12 colour coded strands of insulated conductor bonded together in a flat cable. Ideal for wiring looms or intercoms etc. Can be laid under carpets. Can be split and the individual wires used - same rating as W-2220 series of wire.



Cat W-2045 ..... 90c/m  
Bulk price 100m or more ..... 75c/m

## TELEPHONE-TYPE CABLE

This is the type of wire used by TELECOM Australia for internal telephone wiring. Ideal for intercoms or any other multi-wire circuit. Individually insulated and colour coded. Solid copper conductors, fully tinned for solder connection or good screw connection.



**4 Conductor**

Cat. W-2120 ..... 45c/m

Bulk price 100m or more ..... 35c/m



**12 Conductor**

Cat. W-2140 ..... 75c/m

Bulk price 100m or more ..... 60c/m

## SPEAKER CABLE



**LIGHT  
DUTY  
FIG 8**

Ideal cable for use with Hi Fi systems for speaker connections or with intercoms. Twin plastic insulated conductors, insulation marked with a trace to keep speakers correctly polarised.

Cat. W-2010 ..... 18c/m  
Bulk price 100m or more ..... 15c/m



**HEAVY  
DUTY  
FIG 8**

Ideal cable for connecting speakers to systems of up to 200 watts power. Heavy duty with low resistance for long runs with very low power loss. Colour coded for polarity reference. Conductors 14/0076.

Cat. W-2012 ..... 20c/m  
Bulk price 100m or more ..... 18c/m



**MAINS  
RATED  
FIG 8**

Ideal for use with extension lights, standard lamps etc., also ideal for use with speakers and intercoms if a lower resistance is required.

Rated at 240V AC. Has white plastic insulation.

Cat. W-2020 ..... 30c/m  
Bulk price 100m or more ..... 25c/m



## 3-CORE FLEX

**3 CORE  
MAINS  
CABLE  
7.5A RATED**

A standard power cable for use where an earth is required. Each wire is separately insulated and colour coded and all three cables are contained in a plastic sleeve to give double insulation.

Rated at 240V AC and 7.5 amps continuous.

Cat. W-2055 ..... 50c/m  
Bulk price 100m or more ..... 45c/m

**Fitted mains cord**  
1.6m 7.5A 3 core flex fitted with 3-pin plug on one end: ideal for all mains projects.

Cat. W-2057 ..... \$1.50  
Bulk price 10 or more ..... \$1.40

## WIRE PACKS . . . the economical way to buy!

### HOOK-UP WIRE PACK

24 metres in total of 12 different colours (that's 2 metres of each colour) of the 10 x 0.2mm hook-up wire. Ideal for the hobbyist, experimenter etc.

Cat. W-4010 ..... \$2.25

### RESISTANCE WIRE PACK

Resistance wire suitable for the construction of wire wound resistors, small heater elements, shunts etc. Also ideal for emitter resistors in high power amplifiers.

Wire size: 28B&S (diameter 0.32mm). Solderable - yes. Resistance 1.852 ohms/ft. Non magnetic, corrosion resistant. Composition: 45% Nickel, 55% Copper. Maximum continuous service temperature: 540 degrees Celsius.

Cat. W-3200 ..... 4 metre length ..... 75c

### INTRUMENT TEST LEAD WIRE PACK



Special 512 strand (YES 5121) very flexible wire that is ideal for test leads or for connection to something that is moving. Very low resistance and only 3mm in diameter. Expensive - yes, but it will last for years. Pack contains 2 metres each of red and black (4 metres total).

Cat. W-4016 ..... 4 metre pack ..... \$3.75

## SHIELDED AUDIO CABLE -



**MONO  
LIGHT  
DUTY**

PVC covered, light duty, very flexible cable that is ideal for patch cords, small microphones, etc. Colour - Grey

Cat. W-2030 ..... 30c/m  
Bulk price 100m or more ..... 25c/m



**TWIN  
SHIELDED**

2 PVC covered twin shielded conductors. Ideal for microphones, audio patch leads, hook-up wiring, etc. Flexible, light duty. Colour coded.

Cat. W-2034 ..... 50c/m  
Bulk price 100m or more ..... 45c/m



**TWIN  
SHIELDED  
(Fig. 8)**

The same as the single conductor audio lead but with two conductors separately shielded in fig. 8 pattern insulation. Ideal for stereo connections. Colour - Grey.

Cat. W-2036 ..... 55c/m  
Bulk price 100m or more ..... 50c/m



**HEAVY  
DUTY  
TWIN**

Two conductors individually shielded and colour coded surrounded by a heavy duty outer insulation sheath. Ideal for use where heavy handling could destroy light duty cables i.e. rock groups etc.

Cat. W-2037 ..... 90c/m  
Bulk price 100m or more ..... 70c/m



**FOUR  
CORE  
SHIELDED**

All 4 conductors are individually shielded and covered by grey PVC insulation. Ideal for use with stereo systems that have DIN type connections.

Cat. W-2038 ..... \$1.20/m  
Bulk price 100m or more ..... 95c/m

## COAXIAL CABLE



**75 OHM  
TV COAX  
3C2V**

Designed for TV feeder systems. Cable has excellent dielectric and is suitable for up to 400MHz. It has a 5mm diameter black insulation over braided shield.

Cat. W-2080 ..... 40c/m  
Bulk price 100m or more ..... 30c/m



**50 OHM  
AMATEUR  
(RG58RU)**

For use up to 500MHz making it ideal for the marine radio installation, CB radio, amateur and two-way radio. Flexible with stranded centre conductor and black insulation. Diameter 5mm.

Cat. W-2090 ..... 55c/m  
Bulk price 100m or more ..... 50c/m



**50 OHM  
HEAVY  
DUTY  
(UR67/RG8U)**

Ideal for long run feeder systems due to its very low loss. Ensures maximum operating range of transmitters. Insulation is coloured black and has a 10mm diameter

Cat. W-2095 ..... \$1.75/m  
Bulk price 100m or more ..... \$1.55/m



**MINI  
50 OHM  
TEFLON**

1 metre pack

Able to handle up to 100 watts at 500MHz due to the Teflon insulation, this also means you can solder directly to the shield braid without melting the insulation. Incredibly small diameter, only 2.5mm! Ideal for wiring into transmitters etc., where space is a premium. High quality.

Cat. W-2088 ..... 1 metre pack ..... \$3.75

## TV RIBBON



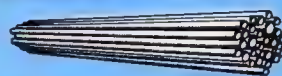
**300 OHM  
FEEDER**

Suitable for indoor or outdoor use.

300 ohm feeder ribbon for connecting serials to TV sets - low loss and maintains perfect balance.

Cat. W-2070 ..... 15c/m  
Bulk price 100m or more ..... 12c/m

## SPAGHETTI PACK



Contains 30 lengths of assorted colours and diameters (each length being more than 150mm), that totals over 4.5 metres of spaghetti.

Cat. W-4040 ..... \$2.50

## WIRE WRAPPING PACK

This is a high quality insulated IC wrapping wire now in a convenient 5 metre pack - keep a couple of packs handy, you never know when you'll need it!

Cat. W-4018 ..... 5 metre pack ..... 95c

## HEATSHRINK TUBING PACK



Make professional terminations. Supplied as a pack of various lengths and sizes and includes (internal diameter) 1.5mm, 2.8mm, 6.3mm, 12.7mm and 19mm. On application of heat from a soldering iron or hair dryer will shrink up to 50% of original size. Retains flexibility after being shrunk - ideal as 'strain' cord on made up leads.

Cat. W-4080 ..... \$2.95

## TINNED COPPER WIRE

High quality 25 gram roll of 22 SWG (approx. 20 B&S) tinned copper wire. Ideal for PC board links, hard wire jumper leads, chassis wiring, etc. 8 metres to a roll.

Cat. W-3022 ..... approx. 6 metres ..... \$2.00



## ENAMELLED WINDING WIRE

Coil winding, motor rewinding, transformer building are no longer a problem with these handy coils of enamelled wire.

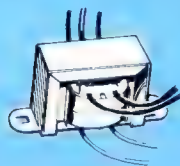
NOTE: Where possible this wire will be supplied with "Bicflux" insulation. Simply heat wire with soldering iron and insulation will flow therefore requiring no stripping.

Gauge	mm	SWG	length metres	Nett weight	Cat No	Price
18	1.25	18	8m	100g	W-3118	\$2.95
18	1.0	19	12m	100g	W-3118	\$2.95
20	0.8	21	18m	100g	W-3120	\$2.95
22	0.63	23	24m	100g	W-3122	\$2.95
24	0.5	25	9m	25g	W-3124	\$1.95
26	0.4	27	20m	25g	W-3126	\$1.95
30	0.25	33	50m	25g	W-3130	\$1.95
32	0.2	36	170	25g	W-3132	\$1.95
36	.125	40	220	25g	W-3136	\$1.95



# Transformers

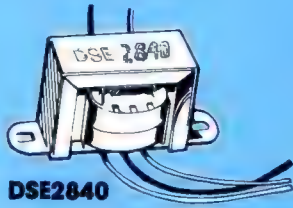
The following transformers have been tested and approved by the Electricity Authority: DSE2851 (Certificate No CS2204N); DSE2155 (Certificate No CS2078N) and DSE6672 (Certificate No CS2205N)



**DSE2824**

Primary: 240V, 50Hz  
Secondary Voltage: 7V CT & 7.75V  
Secondary Current: 250mA & 10mA  
Terminations: Flying leads  
Cat M-2824

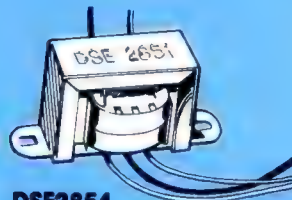
**\$2<sup>45</sup>**  
10 up **\$2<sup>20</sup>**



**DSE2840**

Primary: 240V, 50Hz  
Secondary Voltage: 9 volts CT  
Secondary Current: 150mA  
Terminations: Flying Leads  
Cat M-2840

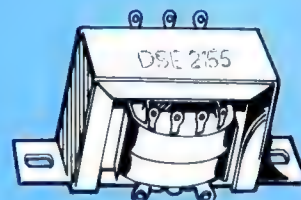
**\$3<sup>95</sup>**  
10 up **\$3<sup>45</sup>**



**DSE2851**

Primary: 240V, 50Hz  
Secondary Voltage: 12.6V CT  
Secondary Current: 150mA  
Terminations: Flying Leads  
Cat M-2851

**\$3<sup>90</sup>**  
10 up **\$3<sup>50</sup>**



**DSE2155**

Primary: 240V, 50Hz  
Secondary Voltage: 6.3, 7.5, 8.5, 9.5, 12 & 15V  
Secondary Current: 1 Amp  
Terminations: Solder Lugs  
Cat M-2155

**\$5<sup>90</sup>**  
10 up **\$5<sup>10</sup>**

Ideal for high power equipment  
**3-6-9-12V DC**  
**@ 1 amp**

## Dick Smith Power Supply

A power supply designed for use with CB radio for base station use but has many other uses as well. Output voltage is 13.8 at 2 amps continuous, 4 amps peak pulse. Front mounted on/off switch and rear mounted output terminals for non messy wiring. This product is excellent quality and will serve both the ardent CB'er and the enthusiast who requires a good quality bench DC supply.  
Cat M 9545



**\$42<sup>50</sup>**  
**1000s SOLD**



Invaluable around the home or workshop. It will give a maximum of 1 amp at 3, 6, 9 and 12 volts DC. Simply plugs into 240V AC power socket - DC connections via screw terminals on front of unit. Ideal for use with alarm systems, intercoms, etc.  
Cat M-9530

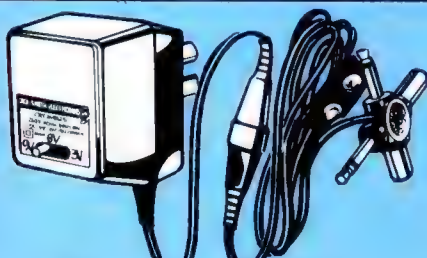
**ONLY \$17<sup>50</sup>**



## DICK SMITH VARIABLE POWER SUPPLY

A very popular power supply that features a continuously variable voltage range from 5V to 15V DC. The current ratings are 2 amps continuous, 3 amps short term or 4 amps peak pulse. Also included is a current limit protection switch with two positions, just over 2 amps with the switch on, and just over 4 amps with the switch off. Fuse protection is also incorporated for extreme circumstances. The meter can be switched to show either volts or amps. All controls are mounted on the front panel for ease of use making the unit ideal for work bench supplies  
Cat M 9546

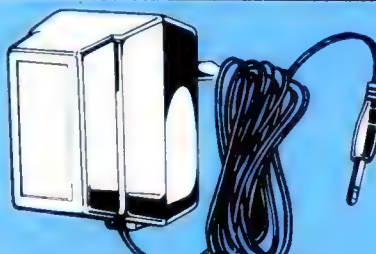
**AT ONLY \$67<sup>50</sup>**



**3V - 6V - 9V DC**

This battery eliminator is one of the most superb buys in this catalogue - many thousands have been purchased by people who know how to save money! It is a small plug-in unit that has three output voltages of 3, 6, and 9 volts DC at 200 milliamps - possibly the three most used voltages on battery powered equipment. It is ideal for many battery driven items.  
Cat. M-9525

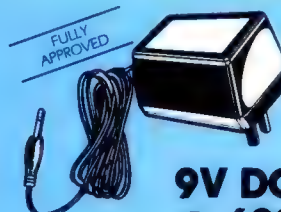
**\$9<sup>95</sup>**



**9V DC @ 200mA**

For all equipment requiring 9V DC at a 9V transistor type battery or many of the static hobby models that require 9V. Eliminator module simply plugs gently into a 240V AC power socket.  
Cat. M-9514

**\$6<sup>30</sup>**

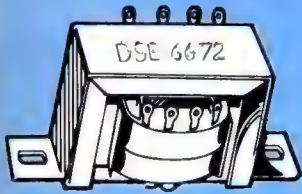


**9V DC @ 600mA**

Extra high power - ideal for 9 volt equipment which needs more than the low power-plug packs can provide, (such as cassette recorders etc.)  
Cat M-9560

**\$15<sup>25</sup>**





DSE6672

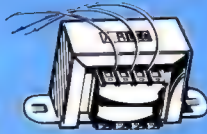
## Model M-6672

Primary: 240V AC  
Tapped Secondary: 15, 17.5, 20, 24  
Voltages: 27.5, 30volts  
Secondary Current: 1 amp  
Termination: Solder Lugs

Cat. M-6672

**\$7.60**

(10 up \$6.60 ea)

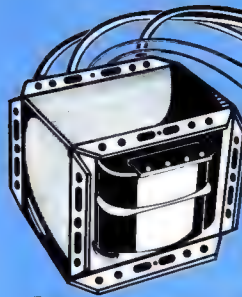


## Model M-0146

Primary: 240V, 50Hz  
Secondary Voltage: 15, 17.5, 20, 24,  
27.5 & 30V  
Secondary Current: 1 Amp  
Terminations: Solder Lugs

Cat. M-0146

**\$19.50**

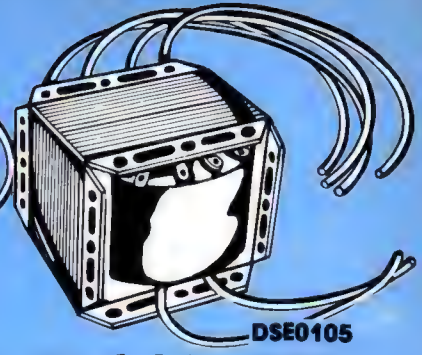


## Model M-0144

Primary: 240V AC  
Secondary: 28-0-28V @ 2A (2A @ 56V)  
Similar to the Ferguson PF 3577  
Suits 100 watt guitar amplifier kit.

Cat. M-0144

**\$29.95**



DSE0105

## Model M-0150

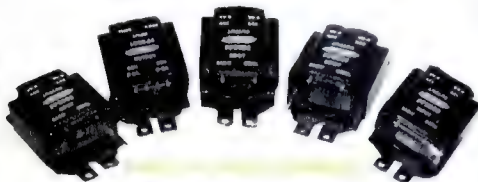
Primary: 240V, 50Hz  
Secondary Voltage: 2 x 47V  
2 x 15V  
(47V) 3A ea  
(15V) 0.5A  
(Total 300VA)  
Flying leads

Cat. M-0150

**\$49.95**

## Low cost Low profile

Each transformer has two separate secondary windings which can be wired in series or in parallel. They are fitted with round pin terminations and include leads. 240V AC primary.



PL12/20VA	2 x 6V@1.7A - 6V@3.4A - 12V@1.7A	M-3586
PL15/20VA	2 x 7.5V@1.3A - 7.5V@2.6A - 15V@1.3A	M-3597
PL18/20VA	2 x 9V@1.1A - 9V@2.2A - 18V@1.1A	M-3598
PL24/20VA	2 x 12V@85A - 12V@1.7A - 24V@85A	M-3599
PL30/20VA	2 x 15V@69A - 15V@1.3A - 30V@69A	M-3600
PL40/20VA	2 x 20V@51A - 20V@1A - 40V@51A	M-3601

all models  
only **\$16.10** each

Fantastic value

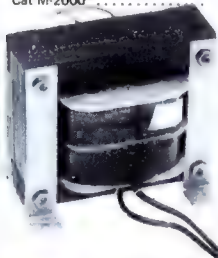
## 115V stepdown transformer for US small appliances

Input 240V AC and secondary voltage 115V AC @ 60VA with 7% regulation. The unit is fully encased and has fuse protection for the output. Heavy duty carrying handle and socket outlet. Weight 2.9kg  
Cat M-1156

**\$59.95**

## Model M 2000

Primary 240V AC  
Secondary voltage 18volts @ 6A  
Termination flying leads  
Cat M-2000



6amps! **\$17.75**

## Transformers for computer Projects

Suitable for a large range of computer and logic oriented projects. It has one 6.5 volt winding at 4 amps and 2 x 12 volt 0.5 amps windings. These can be series or parallel connected for greater flexibility

Cat M-2325

**\$24.50**

## SPECIAL 'C' CORE

### Model M-0148

Primary 240V AC Secondary 26 - 0 - 26V @ 2A  
Used in the Playmaster 40/40 stereo amplifier kit.

### Model M-0152

Primary 240V AC Secondary 36 - 0 - 36V @ 2A  
As used in the Playmaster Mosfet amplifier.

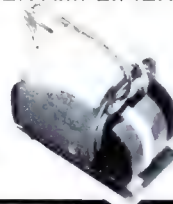
AS USED IN THE  
PLAYMASTER AMPLIFIER  
KITS

Cat M-0148

**\$34.50**

Cat M-0152

**\$34.50**



## Transformers Transistor Audio

Ideal for transistor radio replacements, good for transistor projects including oscillator circuits, requiring coupling transformers. Miniature size.

Model M-0222 - Primary 3k ohm Secondary 3k ohm  
Use - Coupling Iron Core Size 17 (l) x 15.5 (w) x 15 (h)mm.  
Cat M-0222 **\$1.10**

Model M-0216 - Primary 1k ohm CT Secondary 8 ohm  
Use - 350MW O/P. Ferrite Core Size 15(l) x 14(w) x 11.5(h)mm  
Cat M 0216 **\$1.00**

## Computer owners- protect your system with a Jabel Line Filter

Spikes, spurgles and sundry other garbage on the mains can spell disaster for your poor computer. Even separate sections of the computer can cause mains hash (eg printer). This deluxe filter virtually eliminates most mains-borne garbage giving your computer a clean line supply with which to operate. If you're having 'crash' problems with your computer - could be this filter will fix it! Rated at 240 volts, 2 amps. Fully approved by the Electricity Authority.

Cat M-9850

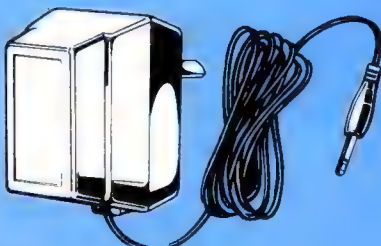
ONLY **\$109.50**

## PCB Mounting Transformers

Mounts directly onto the PCB which makes wiring incredibly simple.  
Two separate secondary windings - can be series or parallel connected.  
Gives 24 volts at 0.21 amp in series or 12 volts at 0.42 amp in parallel.  
Great for hobbyists!

Cat M-3590

**\$9.10**

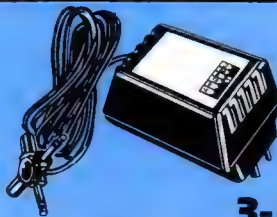


## 12V AC @ 500mA

Ideal power supply for projects that requiring 12V AC at 500mA. Because the whole of the plug-pack is transformer, you get a much higher current rating than other plug-packs. Rectifiers and filter components can be placed inside the project itself.

Cat. M-9555

**\$15.25**



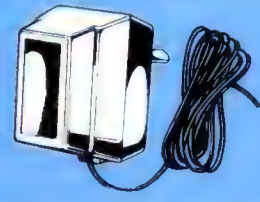
## 3-4.5-6- 7.5-9-12V @300mA

### SWITCHABLE PLUG PACK

An extremely versatile supply ready for just about any application. Switchable output gives 6 different voltages ranging from 3V to 12V, at up 300mA. Complete with 5-way connector to suit almost all power sockets in common usage (including 9 volt battery connectors). ENERGY AUTHORITY APPROVED

Cat. M-9526

**\$13.95**



## 12V DC @ 200mA

The ideal eliminator for any equipment requiring 12V DC at a maximum of 200mA. The pack simply plugs into any 240V AC power socket and is then ready for use. Suggested uses would be with handheld transceivers when they are used as base stations; the older type portable radio that worked on 12V DC etc.

Cat. M-9550

**\$12.95**



# Batteries



## SAVE WITH OUR HI WATT BATTERIES

Compare other brands and prices — and see the huge savings on quality Hi-Watt batteries from Dick Smith! Specially imported, factory fresh batteries — just right for all your battery operated devices. And they're available in all popular sizes and styles — right down to the tiny AAA and UM-10 sizes often so hard to get! Because of our huge turnover of batteries, they're always in the freshest possible condition. Next time you need a battery... try Hi-Watts!

D size metal jacket	Cat S-3001	1-9	10 up
C size metal jacket	Cat S-3002	40c	36c
AA (penlight)	Cat S-3003	35c	30c
AAA size	Cat S-3004	30c	25c
UM5 (R-11)	Cat S-3005	35c	30c
216 (9V) size	Cat S-3006	25c	22c
		50c	45c

## DICK SMITH ALKALINE LONG LIFE

At last! An alkaline long life battery you don't have to pay the earth for! Dick's own long life — quality made in Japan, and guaranteed 'fresh as a daisy'! At present only size available is AA (penlight), but we hope to introduce more sizes shortly. Come in blister packs of two batteries — and look at our bargain price!



**\$1.75**

(5 up \$1.50 PR)

Cat S-3281

## EVEREADY ENERGIZERS

Top brand name, top quality! Eveready Alkaline Energizers, recommended for extra heavy duty applications where normal batteries turn up their toes! All normal sizes available; always guaranteed fresh and ever ready.



2x pencils in pack	Cat S-3280	\$2.20
2 x C cells in pack	Cat S-3282	\$2.80
2 x D cells in pack	Cat S-3284	\$3.20
1 x 216 (9V) in pack	Cat S-3286	\$3.60

## EVEREADY POWER BATTERIES



Eveready Red batteries in 5 types. How's your lantern battery?

216	9V	Cat S-3108	\$1.40
276P	9V	Cat S-3210	\$5.35
2362	9V	Cat S-3200	\$5.55
509	6V	Cat S-3240	\$4.20
732	12V	Cat S-3242	\$12.35

## BATTERY HOLDERS & SNAPS



Case made of quality plastic, all terminals are nickel plated. Special Note: All units, except for Cat P-6101 which has solder connections, require a 216, Cat P-6216, snap connector.

Type	Holds No.	Batt Type	Cat No.	Price 1-9	Price 10 up
Snap	-	216	P-6216	20c	15c
Square	1	D	P-6101	50c	35c
Flat	4	C	P-6104	70c	55c
Long Flat	4	AA	P-6114	55c	45c
Rectang.	6	AA	P-6116	80c	70c
Square	4	AA	P-6124	55c	45c
Rectang.	6	AA	P-6128	\$1.00	90c

## WATCH BATTERIES

Size G-10 — Ideal for Q-3024 clock/calculator.  
Cat S-3292.....\$2.25 each

G-13. Suits Y-1042 travel alarm clock and many others.  
Cat S-3293.....\$3.95

G12. Many watches use this type of battery.  
Cat S-3295.....\$2.95

G3. Also used by numbers of watches.  
Cat S-3299.....\$2.00

G8. As used in the space attackers watch, etc.  
Cat S-3296.....\$2.10

## MERCURY CELLS

Suits C-1073 wireless microphone (see microphone pages).  
Cat S-3297.....\$3.45



Cat Q-1525

**Don't throw 'em out, test them!**

## Dick Smith BATTERY, LAMP & FUSE TESTER

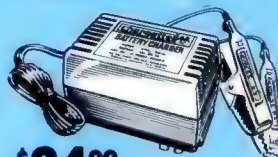
**\$9.95**

The trouble with batteries is that you're never quite sure whether they're flat or not. You could be throwing away a fortune in not-dead batteries!

Check all batteries before throwing them away with this simple checker: it actually puts a load on the batteries to make sure they're okay, and gives a simple yes/no reading. Checks virtually all types of cells from watch & calculator batteries to alkalines & NiCads! Also checks lamps and fuses for continuity... what a bargain!

## BATTERY CHARGERS

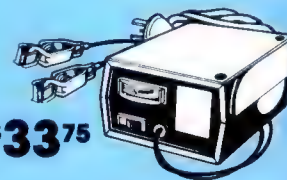
### Chargette



**\$24.90**

The experts tell you to charge your battery a little, but often for maximum life. This Chargette does just that with a 1 A trickle charge that will keep your car battery always ready. Plugs directly into power point; complete with leads and clips. Cat M-9802.

### High Power Charger



**\$33.75**

This one will get you going — fast. With a high 4A charge rate it will completely charge a dead battery overnight; it could get you going in much less time. Complete with charge meter so you won't overcharge the battery. Top value! Cat M-9800.

## NiCad CHARGER

For charging batteries



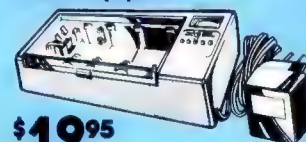
Cat M-9517

**\$12.00**

To charge NiCads, most devices have a 2.5mm socket which allows an external charge to be plugged in. This charger is ideal for all NiCad packs from 6 to 10 cells, including the S-3310 pack. Fully approved by Electricity Authority.

## CHARGING CABINET

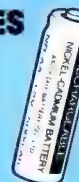
For charging batteries outside equipment



**\$19.95**

Can't charge NiCads inside the device? No problem: this incredibly versatile charging cabinet suits virtually all sizes and types of NiCad cell. Has a test meter to indicate charge and 5 LED indicators to show battery state. Fully approved, complete with plug-pack as shown. Cat M-9519.

## NiCad BATTERIES



### 'AA' (penlight) size

By far our most popular NiCad cell — we sell almost as many of these as ordinary AA batteries! Despite their initial higher price, NiCads work out much cheaper in the long run because they can be re-charged up to 200 times! Rated at a massive 500mA/h, this battery is suitable for almost all devices using standard AA batteries. 1.2 volts.  
Cat S-3300

**\$4.90**  
(10 up \$1.70)

### 'C' size

Similar to above, but larger in size (same as conventional 'C' size) and with greater capacity (1.2Ah). Supplied as a pair on a blister pack.  
Cat S-3302

**\$11.80**  
PAIR

### 'D' size

Also rated at 1.2Ah, but has same physical size as standard 'D' battery. Also supplied in card of two.  
Cat S-3304

**\$12.50**  
PAIR

### '216' size

Now you can have a rechargeable '216' size as well — the type used in transistor radios, etc. Slightly lower terminal voltage than standard 216 (7.2V vs 9V) but this usually doesn't matter in most circuits. Rated at 100mA/h. Single battery on card.  
Cat S-3306

**\$10.25**  
EACH

### 12 Volt 225mA/h pack



**\$39.95**

Amazing value!

A 12 volt NiCad battery pack which replaces the usual penlight battery pack used in hand held transceivers, etc. Rated at 225mA/h, it has a surprisingly high rating for its small size. Fitted with both a '216' style snap and a 2.5mm socket, you can connect both at the same time to allow external charging. Use our M-9517 charger (see above) for this battery.  
Cat S-3310

## CAR VOLTAGE CONVERTERS



**6-12V** Cat M-9592

**24-12V** Cat M-9594

If you drive an old geebub or a truck, you'll know how frustrating it is when your vehicle supply voltage is different from the device's! Here's the solution — two models for both types of problem: a 6 to 12 volt, and a 24 to 12 volt. Output current 2A continuous, 3A peak. Suits car radios, stereos, CB's, scanners, etc.

**BOTH TYPES**  
**\$31.00** each

## HI POWER PLUG-IN



**6V, 7.5V & 9V in one!**

Suitable for battery powered equipment that requires more than average current (eg larger cassette & radio units, etc). Complete with 4-way plug and battery snap connector. Massive 800mA! Cat M-9584

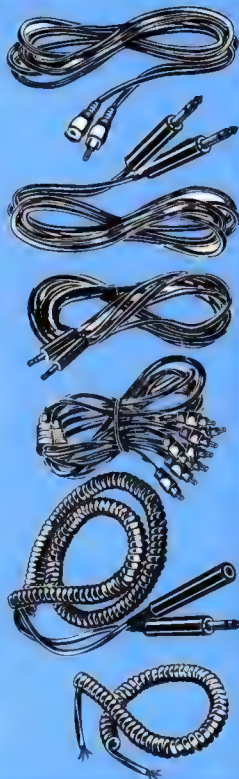
**\$9.95**



# Misc. Components

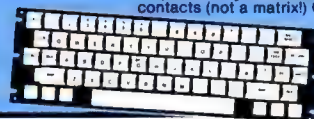
## AUDIO ADAPTOR LEADS

	5 pin DIN plug to 5 pin DIN plug Cat W-1010.....	\$3.75
	5 pin DIN plug to 2 x 3.5mm plug Cat W-1050.....	\$3.50
	5 pin DIN plug to 4 x RCA plugs Cat W-1040.....	\$4.75
	1 x RCA plug to 1 x RCA plug Cat W-1070.....	\$1.40
	4 x RCA plugs to 4 x RCA plugs Cat W-1060.....	\$5.75
	2 x RCA plugs to 2 x RCA plugs Cat W-1180.....	\$3.75
	1 x RCA plug to 1 x 3.5mm plug Cat W-1080.....	\$1.90
	2 x RCA plugs to 1 x 3.5mm plug Cat W-1250 (not illust) ...	\$3.50
	1 x RCA plug to 1 x RCA socket Cat W-1280.....	\$2.50
	1 x 3.5mm plug to 1 x 3.5mm plug Cat W-1150.....	\$1.95
	6.5mm plug to 6.5mm plug Cat W-1120.....	\$4.75
	4 metres coiled lead with 6.5mm plug to 6.5mm stereo socket Cat W-1120.....	\$4.75
	2 metres coiled lead with 3 conductors plus shield, very flexible, ideal for replacement mic leads Cat W-1365.....	\$2.50 (10 or more) \$1.95



## Quality keyboard kit

As supplied with the Super 80 kit; countless applications in the computer/data fields. Standard QWERTY design with high tactile response keys. Individually switched key contacts (not a matrix) Cat K-3601



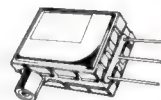
\$45.00

## Special kit components

### Video & Audio Modulators

Used in the Super 80 kits, TV games, etc. A must for computer hobbyists; allows your video output to be connected to any standard TV set.

RF (output channel 1) Cat K-6040 \$5.50  
Audio (output ch 0) Cat K-6042 \$4.50



### Strobe reflector

Photographic quality spun aluminium reflector with a huge range of lighting & photographic applications. Cat K-6016

\$4.95

### Special Grade Ferrite Rods

As used originally in Playmaster Twin 25 & 40/40 as chokes in the speaker lines. Extra high grade ferrite means dozens of other applications.

Cat K-6036

60¢

### Special Crystals

3.58MHz - as used in frequency counter kit. Cat K-6031 \$3.00 ea

10MHz - as used in new frequency counter. Cat K-6032 \$4.95 ea

2.304MHz - as used in Playmaster Tuner Cat K-6034 \$5.95 ea

12MHz - as used in Super 80 kit. Cat K-6035 \$4.95 \$3.50 ea

### CDI Eyelet Assembly

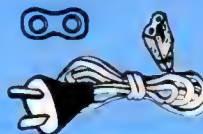
Double eyelet on phenolic insulator, intended for use on ignition coils. Many other electronic & automotive applications. Cat K-6001

30¢

## AUDIO EQUIPMENT MAINS LEAD.

Full 2 metres long, fits virtually all cassette recorder, radio, etc using two pin mains socket. For double insulated equipment only - no earth wire fitted. Cat W-1360

\$3.50



## AMATEUR RADIO TRANSMITTER VALVES

Quality valves from the world's leading manufacturers. Keep a couple handy for your transceiver... you never know!!

8146B Cat D-7202 \$10.95

6J56C Cat D-7204 \$14.95

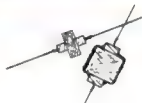
## CHOKES

### RF Chokes

10uH	L-1773	100uH	L-1795
15uH	L-1775	150uH	L-1799
22uH	L-1779	220uH	L-1803
33uH	L-1783	330uH	L-1807
47uH	L-1787	470uH	L-1811
68uH	L-1791	560uH	L-1813
82uH	L-1793	820uH	L-1817

ALL OF THE ABOVE VALUES AT \$1.00 ea

1mH Cat. L-1820	\$1.50
1.5mH Cat. L-1822	\$1.50
2.5mH Cat. L-1824	\$2.00
5mH Cat. L-1826	\$2.40
10mH Cat. L-1830	\$2.50



## Power Choke

The same power choke as used in the stereo booster kit (see kit section). Ideal for use in vehicles to eliminate noise on your car radio.

Cat. L-1900 \$1.80

## Pot Core Assemblies



Philips P36 assembly consisting of 2 cup cores and former. Replaces FX2242 and is ideal for the CDI kit. 36mm core diameter.

Cat. L-1436 \$4.85

Former to suit FX2242 core

Cat. L-1437 45¢

## Slug Tuned IF/OSC Coil Pack



Ideal for experimenters and service technicians. Set comprises 1st, 2nd and 3rd 455kHz standard miniature IF transformers and standard b/c oscillator coil.

Cat. L-0260 \$1.65

## Coil Formers & Accessories

5mm former, subminiature (4mm core).

Code 722/1

Cat. L-1010 1-9 40¢ ea  
10 or more 35¢ ea

6 pin base to suit above.

Code 5027/6PLB

Cat. L-1015 40¢ ea  
10 or more 35¢ ea

Can to suit above 12.7x12.7x19mm high. Code 7100

Cat. L-1020 40¢ ea  
10 or more 35¢ ea

## 455kHz Ceramic Filter

SFD455B (SF455D) the modern replacement of the IF transformer. Two resonators are coupled by an external capacitance to give maximum selectivity with a flat response. Typical selectivity 20dB min at  $\pm 10$ kHz with 3dB bandwidth of  $\pm 4.5$ kHz.

Cat. L-1605 1-9 \$1.90 ea  
10 or more \$1.70 ea

## Telescopic Antenna

Deluxe antenna, ideal replacement for radios or use in projects. Multi section, tight fitting, chrome plated.

Cat. L-4902 \$4.25

## Aerial Rods

Approximately 200mm long, and 9.5mm diameter.

Cat. L-1401 \$1.55

## Aerial Rod with Coil



Complete Ferrite rod with pre-wound standard b/c coil. Suits 140-160pF miniature tuning gangs. Ideal for replacements in transistor radios

Cat. L-0520 \$1.30

## Toroids and Beads

FX115 Ferrite beads

Cat. L-1430 15¢ ea

Philips bead 4312-020-31550

Cat. L-1432 50¢ ea

## Ferrite Cores

Packet of 4 Ferrite cores type F16

Cat. L-1302 pkt of 4 90¢

Packet of 4 Ferrite cores type F29

Cat. L-1307 pkt of 4 90¢

## Balun Formers

1050/1/F14 (40 to 200MHz)

Cat. L-1340 pkt of 2 \$1.40

1050/2/F29 (10MHz to 220MHz)

Cat. L-1352 pkt of 2 \$1.40



## R.F. Toroid Kit

Contains two iron powder cores, enamelled copper wire, application notes, inductance chart and an LCF nomograph. Toroids are used to advantage in Tank circuits, Pi networks, RF transformers, T-Networks, floating tanks, band pass filters, baluns, multiband tuners, antenna loading coils, RF traps, IF networks and oscillator tanks. The two cores provide a useful high Q spectral range of 1MHz through 60MHz.

Cat. L-1410 \$4.00

## RF BALUN KIT (& audio Interference suppressor)

Contains a large, quality balun core (50.8mm dia.) with a quantity of heavy gauge wire, suitable for up to 1kW. Full instructions supplied. Can be used for a number of antenna types up to 30MHz. In most cases they will eliminate RF breakthrough from amateur and CB gear into audio amplifiers. If the speaker leads are wound through the core (as many turns as will fit) the core stops RF energy entering the amplifier in this way

Cat. D-5350 \$12.95

AMATEURS AND  
HI FI BUFFS —  
LOOK AT THESE!



# Project Boxes

Build that special project into a deluxe Dick Smith case. That added touch of professionalism... it makes the difference between just a project - and a project you'll be proud of!

NEW FOR 83

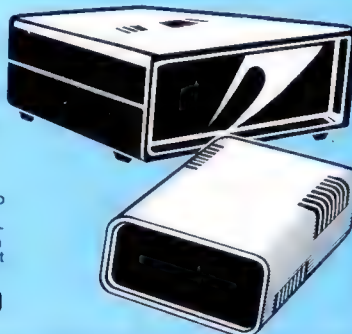
A top quality heavy duty instrument case which is just perfect for power supply kits etc. Top and bottom air vents and front and back panels are included. Complete with removable screw-in rubber feet, this is one of the strongest plastic cases ever available. Size 200 x 145 x 75mm  
Cat H-2504

**\$12.00**

AVAILABLE NOW

This precision instrument case, exclusive to Dick Smith Electronics, has a specially designed vent system to allow for free circulation of air. Its unique snap-together design means that no screws are required. With front and back panels included, this case is ideal for all small projects.  
Size 95 x 145 x 45mm  
Cat H-2503

**\$9.50**

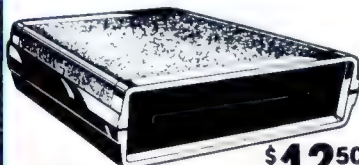
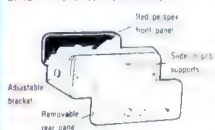


## PLASTIC PROJECT CASES

Superb case for small projects involving LED displays, etc. Designed so PCB slots into case with LEDs showing through red front panel. Comes with mounting bracket. Ideal for clocks, small meters, counters, etc. Size approx. 104 x 44 x 68mm.

Cat H-3194

**\$4.99**



Cat H-2505

**\$12.50**

Very popular case for small to medium size projects - such as power supplies, test & control gear, instruments, small amplifiers, etc. Supplied with front and rear panels, top & bottom screw together. Very tough and versatile case, complete with internal slots for mounting PCB's plus air vents for cooling. At this price, you can afford to place that project in a case instead of leaving it lying around to be damaged! Size approx. 140 x 130 x 78mm.

Cat H-2515

**\$6.30**



A high quality instrument case designed for those larger projects - computer projects, large test gear, amplifiers, battery chargers, etc. Has multiple fixing positions for PCB's, transformers, etc. A metal back plate which doubles as a heat sink, flow-through ventilation, a carry handle, etc. Supplied complete with screws, front & rear panel, etc. Size a massive 200 x 200 x 100mm  
Cat H-2500

**\$21**

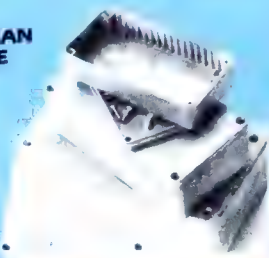
## DIECAST ALUMINIUM BOXES

QUALITY AUSTRALIAN & ENGLISH MADE



Precision die-cast boxes have always been expensive, but these boxes prove you don't have to pay through the nose! English & Australian made, but you save a fortune over comparable prices. These are the ones with channelled walls for easy PCB mounting - and they're ideal for RF circuits because the lid forms a very effective screen. They're also great for circuits involving heat - remember diecast aluminium makes a great heatsink. And these boxes will withstand incredibly high temperatures: up to 600 degrees! Complete with screws.

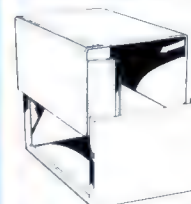
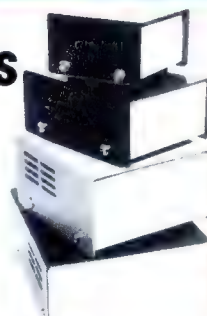
	EA	10 UP
190 x 80 x 110mm Cat H-2201	\$13.50	\$12.80
150 x 50 x 80mm Cat H-2206	\$9.75	\$9.25
120 x 40 x 65mm Cat H-2211	\$5.25	\$4.95
100 x 25 x 50mm Cat H-2221	\$3.55	\$3.20



## METAL CABINETS

Beautifully made cabinets to suit a huge variety of projects, especially those with meters, controls, etc which need to be mounted on the front panel. They consist of an aluminum base, complete with rubber feet, and a steel 'lid' with pre-cut ventilation slots, and self-tapping screws complete with cup washers. All-in-all a case you'd be proud to put your prestige projects into. They come in an attractive two-tone finish.

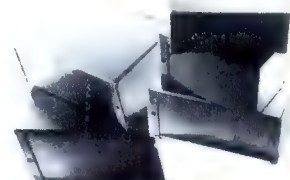
	EACH	10 UP
102 x 56 x 83mm Cat H-2741	\$3.10	\$2.80
150 x 81 x 103mm Cat H-2742	\$4.65	\$4.20
150 x 76 x 134mm Cat H-2743	\$5.35	\$4.80
184 x 70 x 160mm Cat H-2744	\$6.20	\$5.60



## ALUMINIUM BOXES

Just the shot for those weekend projects that get left lying around! Put them in an economical aluminium box... The boxes come in two pieces which slide together - they even come with screws to hold them together! Versatile and very useful - and in a wide range of sizes.

	EACH	10 UP
102 x 51 x 70mm Cat H-2300	\$2.30	\$2.10
102 x 54 x 42mm Cat H-2305	\$2.00	\$1.80
102 x 58 x 58mm Cat H-2310	\$2.45	\$2.25
127 x 58 x 58mm Cat H-2315	\$2.55	\$2.35
127 x 102 x 76mm Cat H-2320	\$3.25	\$2.95
133 x 76 x 54mm Cat H-2325	\$2.80	\$2.55
152 x 130 x 102mm Cat H-2330	\$4.10	\$3.80
178 x 153 x 114mm Cat H-2335	\$6.85	\$6.30



## INSTRUMENT CASES

The professional look for your instrument projects. Made of 'Marvplate' steel with aluminium front and rear panels these cases even have smart handles to make them look just like commercially built units. With the large size range, there's one just right for your project.

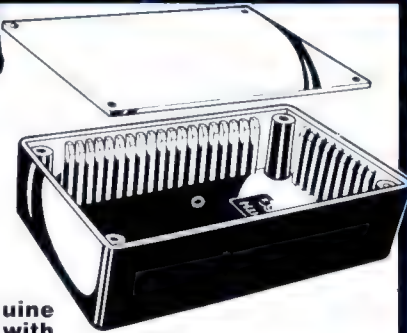
	1-9	10 or more
203 x 102 x 254mm Cat H-2455	\$22.95	\$21.00
228 x 76 x 305mm Cat H-2465	\$24.00	\$22.00



GENUINE

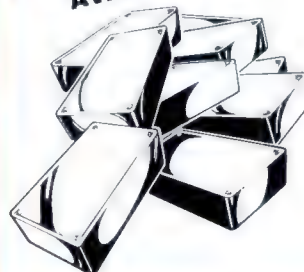
## Dick Smith ZIPPY BOXES

There is only one genuine 'Zippy' box - the one with the all-round deep ribbing. Don't be fooled by inferior copies - this is the one used by the major electronics magazines because of its versatility. Insist on the one and only - genuine - Zippy Box from Dick Smith!



More projects are built in genuine Dick Smith 'Zippy Boxes' than any other case. And the reason is simple: they're so versatile! From the tough moulded case with its deep ribbed sides, to the close-fitting aluminium lid with screws supplied - for ease of use and versatility you cannot beat a genuine Zippy Box. The ribbed sides are ideal for mounting PCB's without worrying about screws - and the PCB can be mounted either lengthwise or across the box. These are the boxes used by beginners in the Fun Way into Electronics projects - and thousands of other projects.

LARGE SIZE RANGE AVAILABLE!



Small - UB5 (28 x 54 x 83mm) Cat H-2755

**\$1.80** (10 up \$1.60)

Medium - UB3 (41 x 68 x 130mm) Cat H-2753

**\$2.25** (10 up \$2.05)

Large - UB-1 50 x 90 x 150mm Cat H-2751

**\$2.80** (10 up \$2.55)

Giant - UB2 (60 x 113 x 196mm) Cat H-2752

**\$3.99** (10 up \$3.50)



# PCB's and Accessories

## NEGATIVE PHOTO RESIST

The easy way to make professional quality PC boards in your own home (or prototypes in industry). Uses a standard negative of the PCB and forms an image on exposure to UV light. The image is developed to form the 'tracks' of the PCB, ready for etching. Full instructions provided with the resist.

**Resist:** 50 ml bottle, enough for approx. 1500 sq cm of pcb.  
Cat H-5722 ..... **\$4.00**  
**Developer:** 500ml working strength solution developer for negative resist. Enough for entire contents of 50ml resist bottle.  
Cat H-5728 ..... **500ml ..... \$7.20**

## POSITIVE PHOTO RESIST

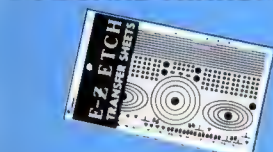
Similar to above system, but this is a positive working polyvinyl compound which uses a positive film (ie, the tracks are represented as black and the unwanted copper area clear). This means that you can use 1:1 tapes & pads, etc on a piece of clear film for one off or prototype pcb making, a very economical method of doing so.

**Resist:** 50ml bottle, enough for approx. 1500 sq cm of pcb.  
Cat H-5720 ..... **50ml ..... \$5.35**  
**Developer:** 70 grams of developer crystals which make up to 2 litres of positive developer (enough for 50ml positive resist).  
Cat H-5724 ..... **70g ..... \$3.30**

## PC RESIST PEN

Ideal for that 'one off' board where the complexity or expense of photographic processes are not warranted. Pen contains a resist solution which is simply drawn onto the PCB in the pattern required. Board is then etched in normal way. It's quick and it's easy! Famous 'Dalo' brand as used by engineers everywhere.  
Cat T-5170 ..... **\$2.40**

## PC BOARD TRANSFERS



This kit will enable you to fabricate PC boards of professional quality. The etchant resist, dry transfer sheets include linear patterns for conductor runs, T sections for junctions, ellipses, teardrops, lozenges, small arrows, and in addition there are images for common component symbols. Each package contains three pages. One page includes 3.2mm lines and two pages contain 1.6mm lines. Applied to the PC board by burnishing the face of the transfer with a pencil or ball point pen. This resist works well with all types of etchant.

Cat H-5656 ..... **\$7.95 per pack**

## ETCHING KIT

Incredible value: a pack consisting of Ferric Chloride, Dalo PC pen, resin (flux), a sample of PC board plus instructions - at less than the price of the etchant and pen on their own! And now the Ferric Chloride comes in this handy new 500ml bottle!

Cat H-5650

**\$6.20**

## FERRIC CHLORIDE ETCHANT

Now supplied in this great new no-spill 500ml bottle of working solution (Ferric Chloride). No more fiddling around with beads and hot water! (Also, replacement etchant for above kit).

Cat H-5652

**\$3.99**

## A guide to printed circuit board making . . .

Exclusive to Dick Smith! Another in the 'How to Do It' series. Intended for the hobbyist and home constructor, with basic information to make pc board making child's play using the products listed above. A bargain at our low, low price

**35¢**

Cat B-6005

Make your own PCB's & panels - it's easy with these aids from Dick Smith Electronics.



Want to make fully professional quality panels, scales, etc in just a few minutes? Or even copy magazine pcb board patterns so you can photographically reproduce them? You need Scotchcal - a range of easily managed photosensitive products ideal for the hobbyist to use with a minimum of effort. There's a polyester film for copying scales, pcb patterns, etc, and a choice of either red or black coloured aluminium sheet to make your panels from.

### Photosensitive film:

You can use this film to reproduce pc patterns, dial scales, etc, ready for use on either photo resist (see left) or Scotchcal aluminium panels. Film is opaque to UV (orange emulsion) size 25 x 30cm, supplied with a sheet of drafting film for you to prepare pc pattern or scale on, using Letraset, pads, ink, etc.  
Cat H-5690 ..... **\$6.65 per sheet**

### Photosensitive Aluminium Sheet

Self adhesive aluminium sheet with either red or black photosensitive emulsion. When developed, exposed areas (ie, clear areas on film) remain while rest is removed. A fully professional quality panel can be made in less than 10 minutes! Sheet size 25 x 30cm. Supplied with full instructions & polyester film sheet.

**Red Emulsion:** Cat H-5692

**\$7.40 per sheet**

**Black Emulsion:** Cat H-5694

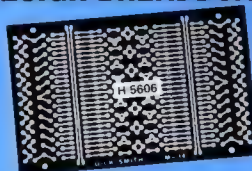
### Developer:

50ml bottle developer for any of the Scotchcal range.

Cat H-5696

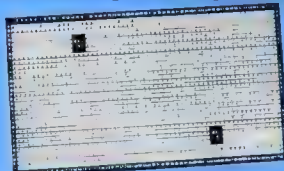
**\$1.50**

## DESIGN BREADBOARD



This is an extremely useful board etched and punched in such a unique pattern that it will accommodate almost all types of integrated circuits and transistor packages as well as passive parts. Each board has over 500 holes punched on 2.54mm grid and over 200 separate silver plated lands as well as in-built buss bars. It will even take the wide 24, 28, 36 and 40 pin DIL packages as well as the 8, 14 and 16 pin packages.  
**Size:** 2.54mm spacing x 80mm x 127mm  
Cat. H-5606 ..... **\$2.55 ea**  
..... **10 up \$2.25 ea**

## PRINTED STRIPBOARDS



DICK SMITH SPECIFICATIONS - PLATED STRIPS - ALPHA NUMERIC GRID

The most versatile board of the lot! Etched copper strips are predrilled and plated ready for solder. The alpha numeric grid facilitates positive pin identification.  
**2.54mm spacing x 76mm x 153mm**  
Cat. H-5612 ..... **\$3.55 ea**  
..... **10 up \$3.15 ea**

**2.54mm spacing x 76mm x 76mm**  
Cat. H-5614 ..... **\$1.65 ea**  
..... **10 up \$1.55 ea**



A quality silver plated copper strip board similar to the English Veroboard. Continuous predrilled striping on a high grade insulator. Packed in plastic sheath to ensure you an untarnished, easy-to-solder surface.  
**2.54mm spacing x 95mm x 304mm**  
Cat. H-5112 ..... **\$4.70 ea**  
..... **10 up \$4.30 ea**

## PRINTED MOUNTING STRIP



A handy 47 way mounting strip for resistors, capacitors and other components. Packs them in neatly. Terminals are numbered for easy circuit identification.

Cat. H-6610 ..... **\$1.65 ea**  
..... **10 up \$1.45 ea**

## PC PINS

These pins push through 2.54mm pitch matrix board or Veroboard to form solder terminals on both sides of the board.

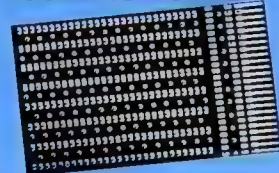
Cat. H-5590 . . . **Pkt 50 pins. \$1.65 pack**

## PC PIN CONNECTORS

Fits the H-5590 board pins. Has many uses.

Cat. H-5592 . . . **Pkt 25 ..... \$1.45 pack**

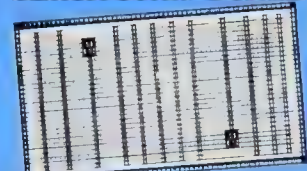
## PLUG-IN IC BOARD



Fantastic plug-in printed circuit board. 2.54mm pin spacing to accept directly up to 14 x 14 pin or 16 pin IC's or up to 20 'Mini-Dip' IC's. Lands are silver plated and a 24 way 2.54mm plug is etched into one end of the board so that it can be used with a 24 way edge connector. An excellent high quality board for the hobbyist or engineer.

**2.54mm spacing x 60(w) x 100(l)mm**  
Cat. H-5610 ..... **\$1.80 ea**  
..... **10 up \$1.60**

## VERSA STRIP BOARD



As H-5612 board, but with pre-cut short tracks making it ideal for multi IC work. Plated strips. Packed in a plastic sheath for protection.

**2.54mm spacing x 76mm x 153mm**  
Cat. H-5616 ..... **\$3.55 ea**  
..... **10 up \$3.45 ea**

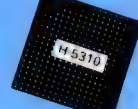
## DIL BOARD



Specially made for Dick Smith Electronics to take up to 5 DIL IC's up to 16 pin. Don't 'birdnest' anymore - makes assembly easier. Quality pre-punched board with deep etched copper lands.

**170mm x 60mm**  
Cat. H-5602 ..... **\$2.00 ea**  
..... **10 up \$1.80 ea**

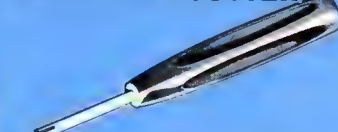
## MATRIX BOARD



Tough phenolic board with punched holes. Ideal for prototypes, bread boards, science or hobby projects.

**2.54mm spacing x 76mm x 76mm**  
Cat H-5310 ..... **\$1.50 ea**  
..... **10 up \$1.35 ea**

## SPOT FACE CUTTER



Remove copper quickly and neatly from all printed circuit board and Vero boards.

Cat. H-5176 ..... **\$3.75 ea**



# Stop Press, etc\*

\*Etc referring to products we couldn't fit in anywhere else, products that were completely forgotten about... etc!

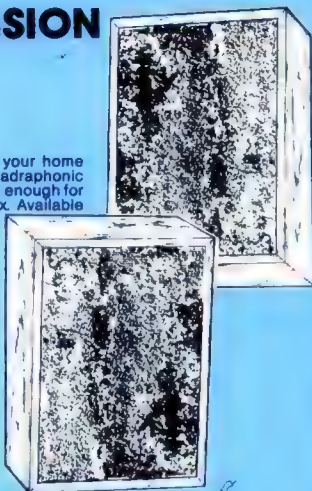
## HI FI AND EXTENSION SPEAKERS

### Indoor hi fi speakers

Just what you need for extension speakers for your home stereo, or for running as rear speakers in a quadraphonic system. Handle up to 15W continuous (more than enough for extension use) with a 2-way system in each box. Available either singly or as stereo pair. Cat A-2460

**\$49<sup>90</sup>** each

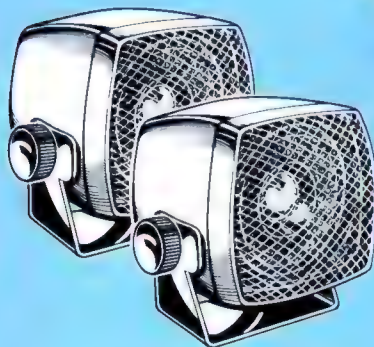
Hey! That works out to less than \$100 for a stereo pair!



### MINI BRUTES!

Wow! What performance from speakers so small! They'll handle an amazing 30 watts yet measure just 100mm square! Absolutely superb in vans, 4WD's, caravans, etc: very elegant appearance with their protective metal 'grille' (saves a damaged speaker!). Supplied with 3 metres of connecting cord at no extra charge - more than enough for most installations, plus brackets as shown. Cat A-2380

**\$42<sup>50</sup>** pair

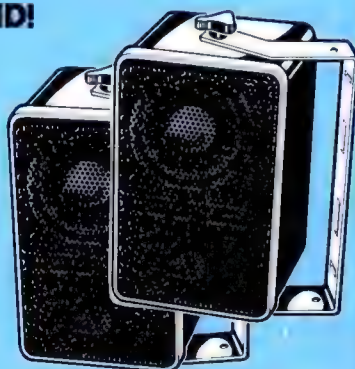


### WHAT A SOUND!

You'll be staggered when you hear the quality of these beauties. Even though they measure just 120 x 120 x 190mm, they give a performance right up there with their big brothers. The enclosures are aluminium, so they're extremely robust and great for outside (under cover) use. Great for the flat owner who hasn't much space, too. Cat A-2375

Specifications: 8 ohms impedance ★ 35 watts handling ★ Freq. response 35Hz to 20,000Hz ★ two way system (100mm woofer & 25mm dome tweeter).

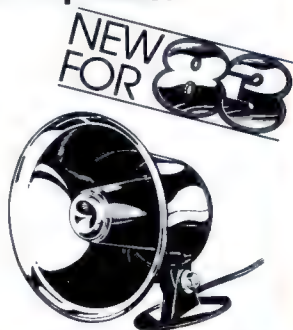
**\$99<sup>50</sup>** pair



### NEW!!! All-weather horn speaker

At last - a horn speaker you can use anywhere! Until now, all horn speakers have suffered from a similar problem: corrosion. Now the brilliant audio engineers have come up with a plastic horn speaker which doesn't sacrifice any of the acoustic qualities of their aluminium counterparts - but doesn't suffer from corrosion! It's a brilliant breakthrough in technology. Don't settle for old type horns any more. Handles 10 watts. Cat C-2705

**\$10<sup>25</sup>** each



## TORCHES

### Go-anywhere 3-way

Really great value. Has a fluorescent lamp for general area lighting (eg inside a tent or camper), a powerful spotlight and an emergency flasher complete with amber lens. Operates from 6 'D' size batteries (not supplied) or from external supply (power socket included - run from the car cigarette lighter). A torch is a must to have around these days - so you might as well make it a good one that will do everything you want! Cat Y-1084

**\$12<sup>50</sup>**



Need batteries? You'll find a full range of the freshest batteries around on page 140



### 12 volt fluoro lamp

Here's one for the campers, caravanners, etc: an attractive miniature fluorescent lamp which plugs in to the car cigar lighter socket, ready for soft, evenly diffused light wherever you want it. Complete with 365mm of cord with cigar lighter plug attached. Inbuilt transistor oscillator circuit has reverse polarity protection - just in case! Cat Y-1082

**\$12<sup>90</sup>**

## SUPER SENSITIVE METAL LOCATOR

How often have you needed to find a nail in a wall or in a piece of timber, locate a water or gas pipe, reinforcing steel in a building, wires and cable behind plaster? This little beauty will do just that, and lots of other jobs requiring metal location. Has sensitivity control that can be adjusted from the smallest nail to the largest R S J. Indication light comes on in the presence of metal up to 6 or more (Range depends on size shape and type of metal). Operates from a single 9V transistor battery. Ideal for plumbers, electricians, builders, handyman etc.

Cat Y-1060

IDEAL FOR USE IN THE HOME OFFICE OR FACTORY

**ONLY \$9.95**



**COMING SOON . . .**  
The following new kits are planned for release soon: watch our adverts!

### Breath Tester

It mightn't be admissible in evidence, but this kit will enable you to get a pretty good idea of your ~~intoxecation~~ <sup>intoxecation</sup> how drunk you are. With random breath testing now rampant, be prepared!

### Transceiver Landline Interface

Patch your transceiver to any type of communications land line. Simple low cost kit, should be very popular.

### New Stereo Synthesiser

A more economy version of the previous model; ideal for video cassettes, AM broadcasts, etc.

### New Motor Speed Control

A very much improved and up-to-date circuit offering considerable advantages over the previous model; better low speed torque, more control, etc. A bewdy!





# Information Page

## Mail Order Information

### ORDER FORMS

To speed delivery we have pre-printed Order Forms (see front and rear of catalogue). All orders on this form receive preferential treatment. Extra forms are available free of charge if requested and one is enclosed with each order despatched.

### CATALOGUE NUMBERS

To minimise the chance of error in your order please use the catalogue number as well as a description of the product.

### PRICES

If prices vary, the new price will be shown on your delivery advice and a debit or credit issued. You may return the goods for a full credit under our satisfaction guarantee, if you are not satisfied.

### MINIMUM MAIL ORDER VALUE

The minimum order amount is \$5.00 unless otherwise implied in 'Special Offers' through advertisements.

### DAMAGED GOODS

All claims for damaged or missing goods must be filed with the carrier concerned — do not open parcel if you suspect that the goods are damaged.

### PAYMENTS

Money orders or crossed cheques to be sent with order. DO NOT SEND CASH through the post. Please make money orders payable at North Ryde Post Office, and cheques made payable to Dick Smith Electronics Pty. Ltd.

### OPEN CHEQUES

If you are not sure of the total amount of your mail order and are paying by cheque, simply cross the cheque, having made it out to Dick Smith Electronics, and leave the amount payable blank. We will then fill in the extra cost of the goods and delivery charges. This eliminates charging for small balances or issuing credit vouchers. Many of our customers have been using this system for years and find it very satisfactory.

### BANKCARD

For your convenience, we accept orders for mail orders on Bankcard. The minimum order value Bankcard purchase is \$5.00.

### ORDER BY PHONE

To make ordering even easier we have installed a special 'Order-by-Bankcard' phone line. To place an order, simply ring us on (02) 888 2105 (8.30 — 5.00pm Monday to Friday) and quote your Bankcard No. & street address. We'll have your order on its way in less than 24 hours. Mail order enquiries should be directed to the normal phone number

(02) 888 2105

### NEW ZEALAND BANKCARD

We are happy to accept New Zealand Bankcard as payment for international Mail Orders. Simply fill in the Bankcard details on the Mail Order form.

### NEW ZEALAND CUSTOMERS

Despite opening a Dick Smith store in Auckland with its own Mail Order Centre, we still have a large number of New Zealand Mail Order Customers buying from our Australian Mail Order Centre because of the increased range available. When buying from overseas, please remember to take into account the difference in exchange rates between your currency and the Australian Dollar.

### OVERSEAS MAIL ORDERS

We are happy to sell to foreign countries. Simply address your order to 'International Mail Orders' at the address on the Mail Order Form. Where possible, we will deduct Australian Sales Tax (note the \$10.00 minimum below for sales tax exemption).

On more expensive items, the savings in Sales Tax could mean the cost of airmail postage is largely recovered. Remember, however, that you may have to pay Customs and importing charges at your end, if applicable. We cannot supply full Customs documentation, but all parcels include the required Customs dockets.

We would also remind overseas customers that our guarantees are 'ex-store'.

### REGISTRATION AND INSURANCE

The customer may nominate registration and insurance for his goods. Where this is not specified, the goods will be sent at the customers — your — risk!

### DESPATCH OF ORDERS

All goods in stock are despatched promptly. Goods out of stock are 'Back Ordered' and sent

later at our expense (and it's an extremely costly job) unless we advise otherwise. All back orders are despatched immediately we receive the goods from our suppliers. When we send a copy of the order back to you, the delay times will be quoted, but because this information is given to us by our suppliers we cannot guarantee their accuracy.

### ENQUIRIES ON ORDERS

If you wish to enquire in any way about your order, please give FULL DETAILS. Give date of posting your order to us, your name, address and postcode, a list of the products ordered, any relevant mail order/cash sale invoice numbers. If the above are not given, we have no way of checking your order.

### PHONE ENQUIRIES ON ORDERS

You are welcome to enquire about your mail order by phoning in. Simply ask for 'Mail Order Enquiries'. When connected give the following information: your name, postcode and the information you require. You will then be asked to phone back in 15 minutes. You will appreciate that with over 75,000 mail order customers, it may take us a little time to locate your order. Phoning back saves time and expense, especially with STD calls. It also saves jamming our switchboard.

### CREDIT ACCOUNTS

We do not operate general credit accounts and we suggest that customers use their Bankcard whenever possible.

### MAIL ORDER HOURS

Telephone enquiries or orders to our Mail Order Centre may be placed from 9am to 5pm, Monday to Friday ONLY.

## General Information

### STOCK AND PRICES

This catalogue is produced to cover the year from April 1983, until March 1984. Because of this, plus the fact that this catalogue is in print production from February 1983, there may be items shown in this catalogue that are not in stock at the time of your receiving this catalogue, or could even be sold out. Likewise, prices are subject to revision during the life of this catalogue. We are aware of the inconvenience that this sometimes causes and would like to take this opportunity to ask you to bear with our problems and if you are not sure as to prices and stock availability, please phone and check with us before making a long journey.

Thank You — the staff of Dick Smith.

### SATISFACTION GUARANTEE

If for any reason you are not satisfied with your purchase, return the goods to us within 7 days of purchase, in original condition and in original carton, and we will exchange or return your money, less transportation costs. Goods returned to us must be unmarked and in the exact condition as supplied. You must include all sales dockets when you return the goods. This policy does not cover semiconductors, valves, books and computer software.

### GUARANTEES

Manufacturers' guarantee.

1. All Australian manufacturers' guarantees are fully valid on products we sell.
2. Semiconductor guarantee policy.

Most manufacturers will not replace semiconductors, as all semiconductors shipped from their factories are computer quality controlled. However, in some cases when the value of the semiconductor is considerable (e.g. over \$5.00), a manufacturer's engineer will test the semiconductor if it is returned unsold to them. You can return your semiconductor to the manufacturer's agents either through our company, if purchased from us, or deal direct, to save time.

3. Periods of guarantee. Unless stated otherwise, items in this catalogue carry a standard warranty of 90 days from date of purchase. If you are not supplied with a guarantee card, keep your sales dockets, including cash register receipt, in a safe place, as the sales docket will become your guarantee card. If your purchase requires warranty service within the warranty period, you will be requested to produce your dockets when returning the product under warranty for repair.

4. Freight. Although repairs under warranty are carried out free of charge, the customer is required to pay the freight both ways. Therefore, to save yourself money, make absolutely certain that the unit is faulty before returning for repair.

### Have you any complaints?

We are particularly proud of the reputation our company has earned with electronics enthusiasts. The last thing we want is an unhappy customer. If there is something that you don't like, or if you have any suggestions which may help us serve you better, why not let us know. I assure you that every letter will receive my personal attention.

Write to: Mr. I. Bain, Managing Director,  
Dick Smith Electronics,  
PO Box 321, North Ryde NSW 2113  
or call me on Sydney (02) 888 3200



### 5. Warranty service on items over \$75.00

retail. At our discretion, we replace on-the-spot, many goods returned under warranty, for a new item from our inventory providing the item is in 'as new' condition, including packing and accessories. However, on high value lines the item must be returned to our service department for inspection before being repaired or replaced under warranty.

### QUANTITY PRICES

On many of our imported lines, we can offer extremely attractive prices for large quantities. Please write your requirements to the Manager, D. S. Distributors, cnr Waterloo Road and Lane Cove Road, North Ryde, N.S.W. 2113.

### SALES TO RESELLERS

To keep prices down to the hobbyist, who are our main customers, all sales tax is paid on our goods on the understanding that they are not to be resold. Resellers should contact our distribution company, D. S. Distributors, cnr Waterloo Road and Lane Cove Road, North Ryde N.S.W. 2113, if they can purchase in large quantities.

### SCHOOLS, COLLEGES ETC

We supply a very large number of schools with components, etc for their electronics courses. Obviously, the bulk discounts apply for schools purchasing in quantity. A 30 day account is available for schools — please apply direct to the General Manager on your school letterhead.

### TERMS

We can offer credit terms from HFC finance to customers who personally visit our stores. These terms are offered on conditions that the customer is approved by HFC finance. Terms are not available for mail order customers.

### Are you looking for a worthwhile job in Electronics?

If you are interested in joining Australia's leading retail electronics company and you are dynamic, self-motivated, ambitious and looking for a big future, why not give us a call. Promotions are based on merit, so the more you put into the job, the more you'll get out of it. Retailing experience and a basic knowledge of electronics are preferred. With 37 retail outlets around Australia and more to come, you would be joining a company that is expanding and you could grow with us.

for further information, write to:

The Personnel Manager  
Dick Smith Electronics Pty. Ltd.  
PO Box 321  
North Ryde, NSW, 2113  
or contact the manager of your local Dick Smith store.

### SPECIAL PURCHASES

We stock the goods shown in this catalogue and our regular advertisements in Electronics Today, Electronics Australia and other magazines, the daily press and on TV. New items are continually being added to the range to cater for as wide a range of needs as possible and a great deal of effort is put into searching for new products. For this reason, it is impossible for us to purchase special items for individual customers.

### COMPUTER HOTLINE

Because of the fantastic response to home computers and their peripherals, we have instigated a COMPUTER HOTLINE. This service is extended to customers who have purchased, or are thinking of purchasing, any Dick Smith computer or hardware and software peripherals. We welcome your enquiries as we feel that the only way to a better understanding of the computers we sell is through your questions. Please ring at any time from Monday to Friday, between the hours 9am-5.30pm. The number to ring is:

(02) 888 2002

### SUBSTITUTION

When a certain product is no longer available, we will substitute for an equal or better quality product on the understanding that a substitute is available. If our purchasing power makes this substitute cheaper, then we will pass on the saving to the customer. If, however, we can improve on the product, the price could either increase or remain the same as the original product. To reiterate, all prices and specifications are subject to change without notice.

### QUOTATIONS

We do give written quotations if required. We must emphasise however, that prices are subject to confirmation at time of order. This is because there are many factors in our prices that are beyond our control and therefore responsibility.

### PRICES ON PRODUCTS

All prices in this catalogue were checked at time of compilation, but are subject to change without notice.

The price savings shown are either of our previous price, or off our competitor's normal selling prices for equivalent goods.

### Store hours

All Dick Smith stores are open for trading during the normal trading hours for their particular area (either 9-5.30 or 8.30-5). Many stores are also open for late night trading; please ring the store concerned for their particular hours (nos. on page 146).



# 37 STORES THROUGHOUT AUSTRALASIA

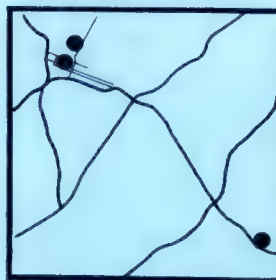
Now you don't  
have far to go  
to enjoy the renowned  
**DICK SMITH** service  
and low prices

## Stores located at:

<b>NSW</b>	<b>AUBURN</b>	Parramatta Rd & Melton St	648 0558
	<b>BANKSTOWN SQ.</b>	155 Terrace Level	707 4888
	<b>BLAKEHURST</b>	613 Princes Hwy.	546 7744
	<b>BONDI JUNCT.</b>	Oxford & Adelaide Sts	387 1444
	<b>BROADWAY</b>	818 George Street	211 3777
	<b>BROOKVALE</b>	531 Pittwater Rd	93 0441
	<b>CHULLORA</b>	147 Hume Hwy.	642 8922
	<b>GORE HILL</b>	162 Pacific Hwy.	439 5311
	<b>GOSFORD</b>	315 Mann Street	25 0235
	<b>LIVERPOOL</b>	Elizabeth Dr & Bathurst St	600 9888
	<b>NEWCASTLE</b>	173 Maitland Rd, Tighes Hill	61 1896
	<b>NORTH RYDE</b>	Lane Cove & Waterloo Rds	88 3855
	<b>PARRAMATTA</b>	George & Smith Sts	689 2188
	<b>SYDNEY</b>	6 Bridge Street	27 5051
	<b>SYDNEY</b>	125 York Street	290 3377 *
	<b>TAMWORTH</b>	Tamworth Arc, Kable Ave	66 1961
	<b>WOLLONGONG</b>	263 Kelra Street	28 3800
<b>ACT</b>	<b>CANBERRA</b>	96 Gladstone St, Fyshwick	80 4944
<b>VIC</b>	<b>COBURG</b>	260 Sydney Road	383 4455
	<b>FRANKSTON</b>	Nepean Hwy & Ross Smith Ave	783 9144
	<b>GEELOG</b>	205 Melbourne Road	78 6766
	<b>MELBOURNE</b>	399 Lonsdale Street	67 9834
	<b>RICHMOND</b>	Bridge Rd & The Boulevard	428 1614
	<b>SPRINGVALE</b>	Springvale & Dandenong Rd	547 0522
<b>QLD</b>	<b>BRISBANE</b>	293 Adelaide St	229 9377
	<b>BURANDA</b>	166 Logan Road	391 6233
	<b>CHERMSIDE</b>	Gympie Rd & Hamilton St	59 6255 *
	<b>TOOWOOMBA</b>	Ruthven & Bowen Sts	38 4300
	<b>TOWNSVILLE</b>	Ingham Rd & Cowley St, West End	72 5722
<b>SA</b>	<b>ADELAIDE</b>	Wright & Market Sts	212 1962
	<b>DARLINGTON</b>	Main South & Flagstaff Rds	298 8977
	<b>ENFIELD</b>	Main North Rd & Darlington St	260 6088
<b>WA</b>	<b>CANNINGTON</b>	Wharf St & Albany Hwy	451 8666
	<b>PERTH</b>	William St & Robinson Ave	328 6944
	<b>PERTH</b>	Centrefway Arc, Hay St	321 4357
<b>TAS</b>	<b>HOBART</b>	25 Barrack St	31 0800
<b>NZ</b>	<b>AUCKLAND</b>	98 Carlton Gore Rd, Newmarket	50 4409

\* These numbers may be  
changed. If you cannot  
get through try directory  
assistance.

Perth store locations



## Head Office & Mail Order Service

Cnr Lane Cove & Waterloo Rds, North Ryde NSW  
(PO Box 321, North Ryde, NSW 2113)

Telephone: (02) 888 3200 Telex: AA20036 Cables: DIKSMIT, Sydney

## Major Resellers

These are our major re-sellers. However, we cannot guarantee they will  
have all items in this catalogue in stock, nor at the prices shown.

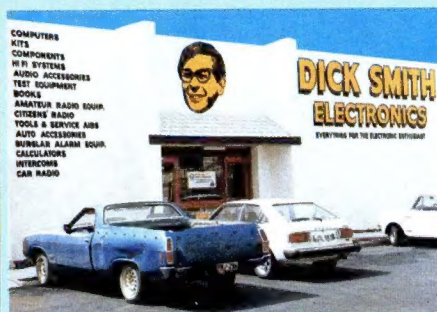
NSW: Ballina A Cummings & Co, 91-93 River St. 86 2255 • Broken Hill Hobbies & Electronics 37 Oxide St 88 409 • Bathurst Sound of Music 87 George Street 31 4421 • Coffs Harbour Coffs Harbour Electronics, 3 Coffs Plaza, Park Ave. 52 5684 • Deniliquin Denil Electronics 220 Cressy Street 81 3627 • East Maitland East Maitland Electronics, Cnr Lawes & High Sts 33 7327 • Gosford Tomorrow's Electronics & Hi Fi, 68 William St. 52 5684 • Lismore Decro Electronics, 3A 16/18 Carrington St. 21 4137 • Orange M&W Electronics, 173 Summer St. 62 6491 • Penrith Acorn Electronics, Shop 12, 541 High St. 36 1466 • Port Macquarie Hall of Electronics, 113 Horton St. 837 440 • Wagga Wagga Wagga Wholesale Electronics, 82 Forsythe St. • QLD: • Atherton Jue Sue's Radio Service, 55 Main St. 91 1208 • Cairns Thomson Instrument Service, 79-81 McLeod St. 51 2404 • Cairns Electronic World, 27 West Court Plaza, Mulgrave Rd. 54 4505 • Gladstone Purely Electronics, Shop 2 Cnr Herbert & Auckland Sts. 724321 • Mackay Stevens Electronics, 42 Victoria St. 51 1723 • Maryborough Keller Electronics, 218 Adelaide St. 21 4559 • Nambour Nambour Electronics Shop, 4 Lowan House, Ann St. 41 1604 • Rockhampton Purely Electronics, 15 East St. 21 058 • Southport Amateur's Paradise, 121 Nerang St. 32 2644 • Toowoomba Hunt's Electronics, 18 Neil St. 32 9677 • Townsville Tropical TV, 49 Fulham Rd, Vincent Village, 79 1421 • VIC: Bendigo Sumner Electronics, 7 Edward St. 43 1977 • Echuca Webster Electronics, 220 Packerham St. 82 2956 • Mildura McWilliam Electronics, 40 Lemon Ave. 23 6410 • Morwell Morwell Electronics, 128 George St. 34 6133 • Shepparton G.V. Electronics Centre, 189B Carlo St. 21 8865 • Warrnambool Western Districts, Shop 2 Forsythe St. 45 4764 • Wodonga A&M Electronics, 78A High St. 244 588 • • SA: Mt Gambler Hutchesson's Communications, 5 Elizabeth St. 25 6404 • Whyalla Mellor Enterprises, Shop 2, Forsythe St. 45 4764 • WA: Geraldton KB Electronics & Marine, 361 Main Terrace. 21 2176 • TAS: Kingston Kingston Electronics, Channel Court. 29 6802 • Launceston Advanced Electronics, 5A The Quadrant. 31 7075 • NT: Darwin Vertronics, 24-26 Cavanagh St. 81 3491



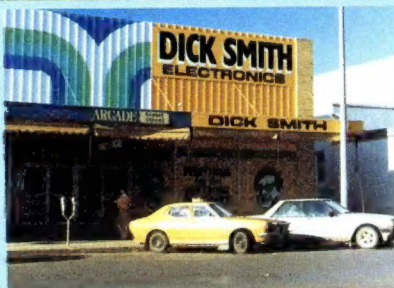
Brisbane store locations



**BRISBANE CITY** - We've covered the suburbs - and now Brisbane has a central City store . . .



**ADELAIDE** - the old Adelaide premises have been replaced by a bigger, better & brighter store . . .

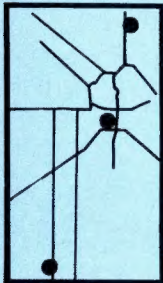


**TAMWORTH** - Dick's first venture into a country area . . .



**LIVERPOOL** - the heart of Sydney's rapidly developing western suburbs . . .

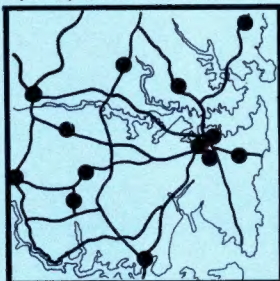
Adelaide store locations



Melbourne store locations



Sydney store locations

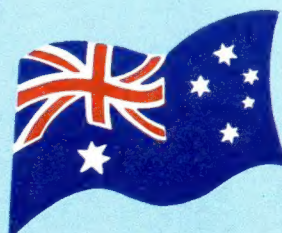


**NOW OPEN IN AUCKLAND**  
Yes - we offer our New Zealand customers our friendly service - including mail orders!

98 Carlton Gore Rd,  
Newmarket, Auckland 1.  
Tel. 50 4409



100% Australian  
owned - and proud of it





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### Would you like to work with us?

As you know, Dick Smith Electronics is expanding. And we're always on the lookout for good people who would like to help us continue to grow.

If you're an electronics enthusiast you already have one of the major qualifications we're looking for! If you think you'd enjoy working for Dick Smith Electronics, why not drop us a line, telling us about yourself. Vacancies will be occurring in just about all areas of Australia and New Zealand - we could be able to offer you employment close to your home!

Write to: The Personnel Manager, Dick Smith Electronics, PO Box 321, North Ryde, NSW 2113.

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Dick's solo helicopter flight around the world.

# The journey of a life time

It's August, 1982 and Dick Smith lifts off from Fort Worth, Texas on the first leg of his solo around-the-world helicopter flight. London to Sydney in September/October completed the second leg and mid-1983 will see the completion with an incredible trans-Pacific flight to Fort Worth. He has flown over some of the most inhospitable places on Earth as well as some of the most famous landmarks. All this has been filmed and photographed by Dick. Here are just a few scenes.



A few minutes before Dick's departure from Bell Textron in Fort Worth.



Special clearance was granted for him to fly around Washington D.C. and film the monuments.



Dick camps out when he is forced to land in Frobisher Bay on Baffin Island.



Flying over 'Bergie Bits' (remnants of icebergs) near Greenland.



One of the many Fjords on the coast of Iceland.



Dick lands in London after becoming the first person to fly a helicopter solo across the Atlantic.



A near disaster! One of two bullet holes found on the helicopter, this one in the fuel tank.



Dick circles Pisa enroute to Rome.



On the way to Cairo, Dick circles the pyramids.



Stark mountains in Western Saudi Arabia separate the Red Sea from the Desert.



Just part of the large crowd of media representatives sent to meet Dick in Calcutta.



Forced down on a beach in Thailand by Monsoon rains.



'Wall' island off the coast of Indonesia.



The greetings of a huge Darwin crowd as Dick lands on Australian soil.



He takes the place of honour in an annual procession in Bundaberg.



Home with the family!





## North Ryde Distribution Centre

**More space  
means greater  
savings for you!**



After just three years in our 'huge' new head office/distribution centre at North Ryde, we're growing again! At the moment building work is in progress which will add almost 50% to the area of the existing building (as shown at right).

More space means more bulk purchasing . . . and more savings for you.



To keep up with our expansion program, we've recently up-graded our electronic data processing department to an IBM System 38, offering greatly increased capacity and power. Even our mail order centre is now going 'on line' to give you even better, more efficient service.



And the quality control & service departments are also expanding to give even quicker turn-around - all products sold by Dick Smith Electronics can be serviced & maintained here in the service centre.



**DICK SMITH ELECTRONICS**  
**100% AUSTRALIAN OWNED AND PROUD OF IT!**